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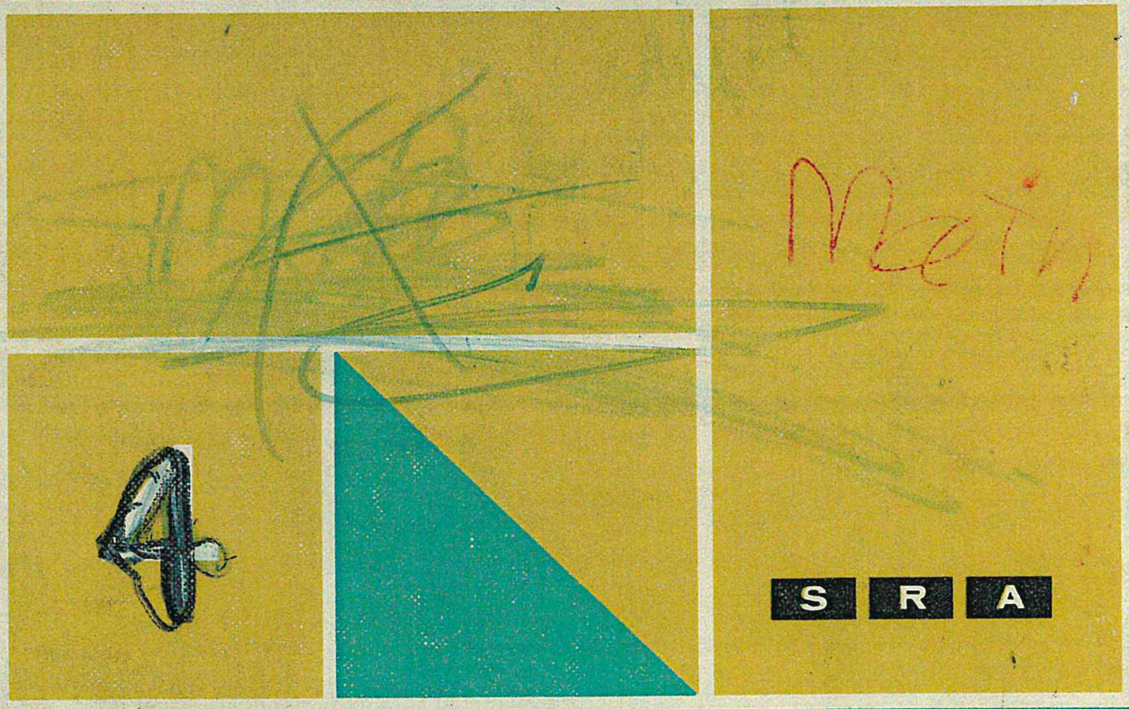
GREATER CLEVELAND MATHEMATICS PROGRAM



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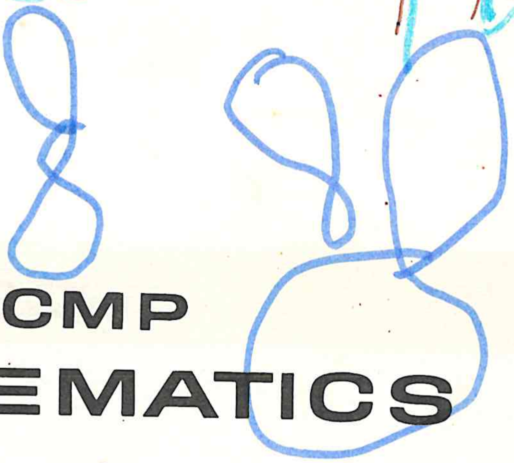

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GREATER CLEVELAND MATHEMATICS PROGRAM

ADAPTED WORK TEXT: 1964 EDITION

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Prepared under the direction of Paul D. McGarvey,
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S R A

SCIENCE RESEARCH ASSOCIATES, INC · CHICAGO, ILLINOIS

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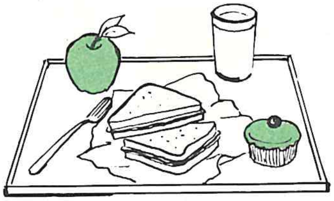
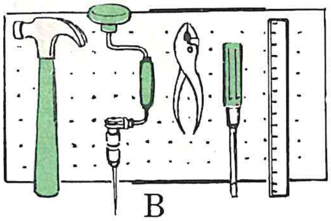
SETS

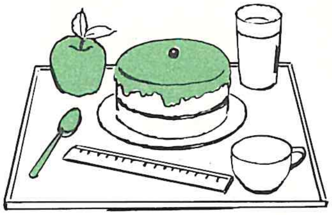
A collection of objects is called a set. Each of the objects in a set is called an element of the set. A set can be described with a picture.



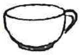
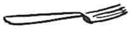
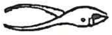
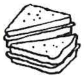
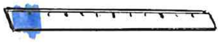
A



B



C

1. Tools are the elements of which sets? B C A
2. The  is an element of which set? C
3. The  is an element of which set? A
4. The  is an element of which set? B
5. Is the  an element of set A? Of set B? Of set C? A
6. The  is an element of which sets? C
7. Which of the elements of set A are also elements of set B? Fork Glass
8. Which of the elements of set A are also elements of set C? apple, glass

---

Let E name the set whose elements are the children in your class.
Let F name the set of children who live in North America.
Let G name the set of all the desks in your classroom.
Let H name the set of children in your class who have three ears.

---

9. Is your teacher an element of set E? Of set G? Of set H? g
10. You are an element of which sets? E E G,
11. Your desk is an element of which set? g
12. The set that contains no elements is called *the empty set.* Which set is the empty set? H
13. All of the elements of set E are also elements of which set? E,G

A set can be described by listing the names of the elements of the set between *braces.*

A = {top, roller skates, baseball, bike, scooter}
B = {trumpet, drum, violin, clarinet}
C = {drum, top, football, wagon, airplane}

In a list, the names of the elements of a set are separated by commas. The elements of a set may be listed in any order.

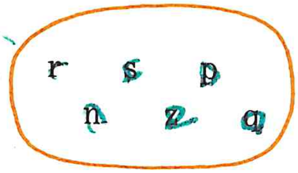
B = {violin, drum, clarinet, trumpet}

1. The football is an element of which set? C
2. The baseball is an element of which set? A
3. The violin is an element of which set? B
4. The drum is an element of which sets? B
5. Which of the elements of set A are also elements of set C? top
6. Which of the elements of set A are also elements of set B? none

---

List the elements of each set.

7.

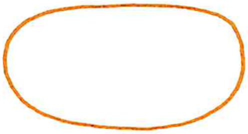


A AB

8. Let C name the set whose elements are the first nine letters of the alphabet.

9. Let T name the set whose elements are the last three months of the year.

10.



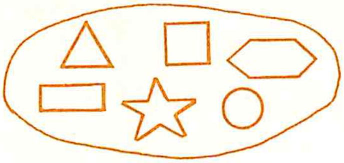
D

11. Let R name the set whose elements are the children in your school over nine feet tall.

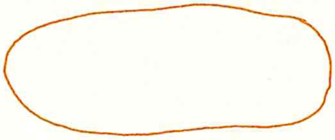
12. Let W name the set whose elements are the U.S. coins each of which has a value less than twenty-five cents.

The number that tells how many elements are in a set is called the *cardinal number* of the set.

Set H

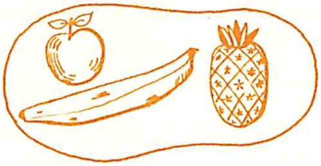


Set L

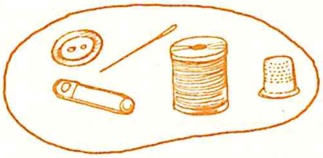


ABC

Set B



Set K



The cardinal number of set H is 6. n(H) = 6

1. What is the cardinal number of set B? n(B) = ?
2. What is the cardinal number of set L?
3. What is the cardinal number of set K?

Let W name the set whose elements are the days in one week.
Let Y name the set whose elements are the months in one year.
Let R name the set whose elements are the children in your class.
Let Z name the set whose elements are the zebras in your classroom.

4. n(W) = 7 5. n(Y) = 12 6. n(R) = 34 7. n(Z) = 0

< means *is less than* > means *is greater than*

Copy each numbered sentence, writing < or > in place of the ○.

Set Y contains 23 elements.
Set Z contains 32 elements.

8. n(Y) ○ n(Z)

Set K contains one less than 7 elements.
Set L contains one more than 6 elements.

9. n(K) ○ n(L)

Set S contains one more than 10 elements.
Set T contains one less than 11 elements.

10. n(S) ○ n(T)

Set E contains one more than 16 elements.
Set F contains one more than 17 elements.

11. n(E) ○ n(F)

The cardinal numbers of sets can be arranged in order beginning with 0.

1. Each cardinal number except 0 is 1 more than the cardinal number just before it.
2. Each cardinal number is 1 less than the cardinal number just after it.

$$0<1<2<3<4<5<6\ldots$$

The set of cardinal numbers can be described by writing $\{0, 1, 2, 3, 4, 5, \ldots\}$.

$W = \{0, 1, 2, 3, 4, \ldots\}$

$C = \{1, 2, 3, \ldots\}$

3. Cardinal numbers are sometimes called *whole numbers.*
   a. Set W can be described as the set of __?__ numbers or as the set of __?__ numbers.
   b. The first whole number is __?__.
   c. List the set of whole numbers less than 7.
   (The set of whole numbers greater than 7 can be described by $\{8, 9, 10, \ldots\}$.)
   d. What is the greatest whole number in the set of whole numbers?

4. The numbers used in counting are called *counting numbers.*
   a. Set C is the set of __?__ numbers.
   b. The first counting number is __?__.
   c. List the set of counting numbers less than 7.
   (The set of counting numbers greater than 7 can be described by $\{8, 9, 10, \ldots\}$.)
   d. What is the greatest counting number in the set of counting numbers?

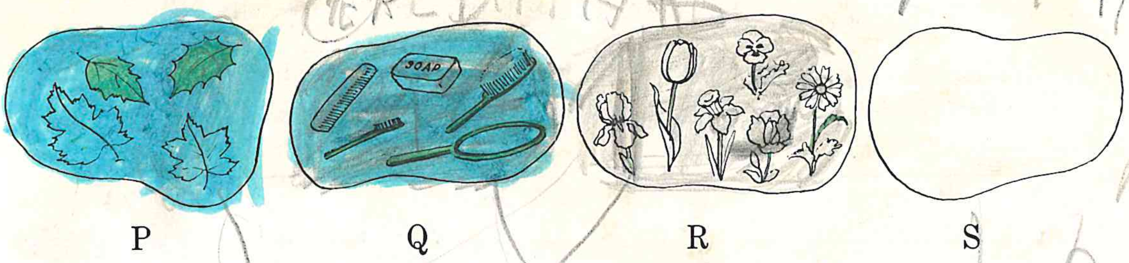
List the elements of the following sets.

5. The set of whole numbers greater than 45.
6. The set of whole numbers greater than 87 and less than 93.
7. The set of whole numbers between 107 and 108.
8. The set of whole numbers less than 0.
9. The set of counting numbers less than 8 and greater than 6.
10. The set of counting numbers between 384 and 385.
11. The set of counting numbers greater than 42.
12. The set of counting numbers less than 1.

W

Any symbol used to name a number is called a *numeral.*

MEREDITH

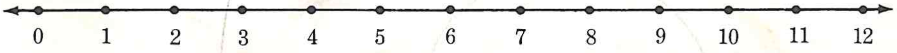


1. What is the cardinal number of set P?
Several other numerals that name the cardinal number of set P are 2 + 2, 3 + 1, 9 − 5, 2 × 2, and 24 ÷ 6.

Write 3 different numerals for the cardinal number of each set.

2. Set Q
3. Set R
4. Set S

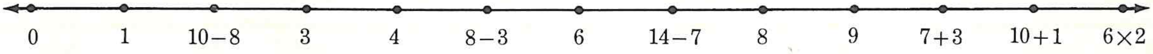
A number line helps us think about the order of the whole numbers. Here is a picture of a part of a number line.



Below each dot is a numeral. Each of these numerals is a *standard numeral.* Standard numerals are the numerals used most often to name whole numbers.

Some dots on this part of a number line are not labeled with standard numerals.

5. List the numerals that are not standard numerals.



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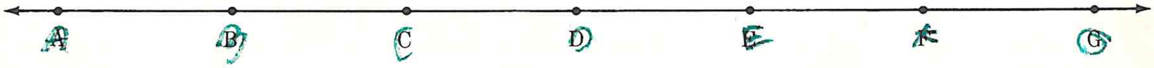
6. Write three different numerals for each dot on this part of a number line.



9

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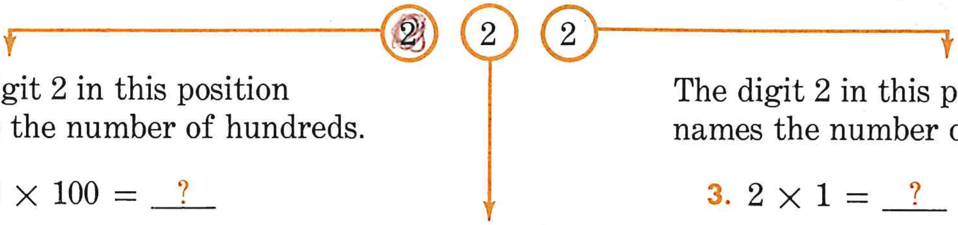
7. Every counting number is also a ___?___ number.
8. But it is not true that every whole number is a ___?___ number.
9. Which whole number is not a counting number?

With these ten symbols—0, 1, 2, 3, 4, 5, 6, 7, 8, 9—we can name any whole number. These ten symbols are called *digits.*

We can decide what number is named by a digit by looking at its position in the numeral. Look at the numeral 222.



The digit 2 in this position names the number of hundreds.

1. 2 × 100 = _?_

The digit 2 in this position names the number of ones.

3. 2 × 1 = _?_

The digit 2 in this position names the number of tens.

2. 2 × 10 = _?_

Sometimes *expanded notation* is used to show the place-value meaning of a numeral.

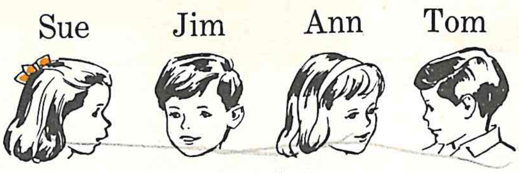
$$222 = (2 \times 100) + (2 \times 10) + (2 \times 1) = 200 + 20 + 2$$

Copy and complete the table.

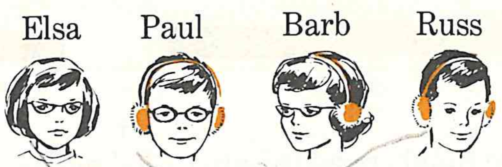
Standard Numeral	Meaning of Standard Numeral	Expanded Notation
23	(_?_ × 10) + (_?_ × 1)	20 + 3
?	(_?_ × 10) + (_?_ × 1)	30 + 2
80	(_?_ × 10) + (_?_ × 1)	?
99	(_?_ × 10) + (_?_ × 1)	?
321	(_?_ × 100) + (_?_ × 10) + (_?_ × 1)	?
?	(8 × 100) + (0 × 10) + (4 × 1)	?
707	(_?_ × 100) + (_?_ × 10) + (_?_ × 1)	?
?	?	900+70+3
500	?	?

When two sets are joined, the new set that is formed is called the *union* of the two sets.

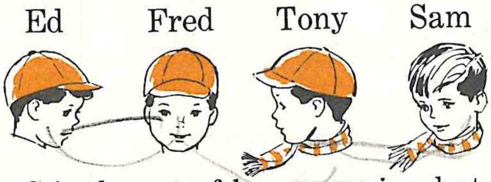
List the elements of each set, using braces.



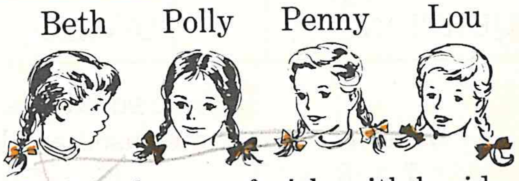
1. A is the set of girls.
2. B is the set of boys.
3. A ∪ B is the set of girls and boys.



7. E is the set of children wearing glasses.
8. F is the set of children wearing earmuffs.
9. E ∪ F = {_?_}



4. C is the set of boys wearing hats.
5. D is the set of boys wearing scarves.
6. C ∪ D = {_?_}



10. G is the set of girls with braids.
11. H is the set of girls wearing hats.
12. G ∪ H = {_?_}

Sets that have no elements in common are called *disjoint* sets.

13. A={b, c, k} n(A)=_?_
B={b, g, c, k} n(B)=_?_
A∪B={_?_} n(A∪B)=_?_

A and B are NOT DISJOINT sets.

14. F={c, a, y, d} n(F)=_?_
H={r, v} n(H)=_?_
F∪H={_?_} n(F∪H)=_?_

F and H are DISJOINT sets.

15.
K={x, y, m}
L={d, y, u, m}

16.
D={v, e, r}
E={t, v, m, n}

17.
C={d, z, i}
R={a, n, w, b}

18.
G={f, l, o}
R={r, i, d, a}

19.
M={b, l, e}
J={a, b, r, k, e}

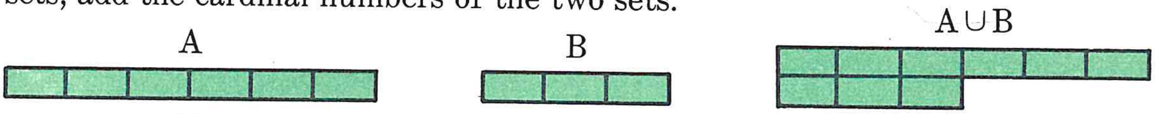
20.
T={m, p, b, e, n, c}
S={p}

21.
W={y, w, v, j, k, a}
V={ }

22.
P={r, o, c}
Y={k, r, e, t}

ADDITION OF WHOLE NUMBERS

To find the cardinal number of the union of two disjoint sets, add the cardinal numbers of the two sets.



$$n(A) + n(B) = n(A \cup B)$$
$$6 + 3 = 9$$

The numbers added are called *addends*. The result is called the *sum*.

Copy and complete the table.

ADDENDS	9, 8	12, 7	?	?	15, 0	43, 26	50, 49
SUM	?	?	?	?	?	?	?
EQUATION	?	?	26+32=_?_	51+48=_?_	?	?	?

Some equations are *open sentences*.

Boxes are sometimes used as placeholders in open sentences.

$7 + 8 = \square$ $\quad 13 + \square = 19 \quad$ $\square + 20 = 30$

Letters are sometimes used as placeholders in open sentences.

$7 + 8 = a$ $\quad 13 + m = 19 \quad$ $p + 20 = 30$

A number that makes an open sentence a true statement is called a *solution* of the equation.

$7 + 8 = \square$
solution: $7 + 8 = 15$

$p + 20 = 30$
solution: $10 + 20 = 30$

Rewrite each sentence, replacing the placeholder with the standard numeral for the solution.

1. $11 + 20 = \square$
2. $8 + 6 = n$
3. $15 + 62 = \square$
4. $0 + r = 20$
5. $70 + 18 = \square$
6. $34 + p = 75$
7. $25 + \square = 36$
8. $19 + m = 99$
9. $41 + \square = 85$
10. $27 + h = 48$
11. $33 + \square = 63$
12. $g + 61 = 83$
13. $\square + 42 = 92$
14. $s + 18 = 98$
15. $\square + 37 = 59$
16. $w + 21 = 65$
17. $\square + 15 = 97$
18. $15 + 24 = b$

A sentence that has an *equal sign* is called an *equation.*

$$50 + 200 = 250$$

A sentence that has a *not-equal* sign is called an *inequality.*

$$45 + 40 \neq 90$$

Copy each sentence, writing = or ≠ in place of the ○ to make the sentence true.

1. 6 + 7 = 5 + 8 10
2. 9 + 3 = 10 + 2 0
3. 5 + 7 ○ 10 + 3
4. 8 + 8 = 7 + 9
5. 10 + 4 ≠ 8 + 5
6. 15 + 14 ○ 39
7. 30 + 43 ≠ 74
8. 13 + 70 ≠ 80
9. 54 + 24 ≠ 88
10. 69 + 10 4 79
11. 120 ≠ 20 + 110
12. 166 = 101 + 55
13. 270 ≠ 170 + 200
14. 425 = 210 + 215
15. 625 ≠ 321 + 331

Some equations are true statements. 100 + 90 = 190

Some equations are false statements. 100 + 80 ≠ 190

Some inequalities are true statements. 505 + 20 ≠ 526

Some inequalities are false statements. 505 + 20 ≠ 525

Copy the statements.
Write *T* before each true statement.
Write *F* before each false statement.

F 16. 9 + 9 ≠ 10 + 8
T 17. 4 + 8 ≠ 10 + 3
T 18. 72 + 7 = 70 + 9
F 19. 54 + 15 = 60 + 10
F 20. 32 + 23 ≠ 50 + 5
T 21. 18 + 81 = 10 + 89
F 22. 43 + 34 ≠ 57 + 20
T 23. 35 + 13 = 15 + 33
F 24. 7 + 8 ≠ 5 + 10
F 25. 2 + 9 = 3 + 10
T 26. 56 + 20 ≠ 20 + 65
T 27. 14 + 71 = 74 + 11
T 28. 30 + 101 ≠ 131 + 1
T 29. 66 + 22 ≠ 26 + 62
T 30. 18 + 71 ≠ 65 + 23

Which number is the solution of the equation?

1. $109+4=m$ 112 113 114

2. $105+6=r$ 110 111 112

3. $107+7=s$ 111 113 114

4. $106+6=t$ 113 111 112

5. $104+8=w$ 112 113 111

6. $508+3=a$ 510 511 512

7. $723+43=p$ 765 757 766

8. $644+54=b$ 689 699 698

9. $308+9=g$ 316 317 318

10. $421+58=e$ 478 476 479

Which numbers make each inequality true?

11. $n < 5$
0 1 2 3 4 5 6 7

12. $n \neq 5$
0 1 2 3 4 5 6 7

13. $n > 5$
0 1 2 3 4 5 6 7

14. $r < 10$
5 6 7 8 9 10 11

15. $r \neq 10$
5 6 7 8 9 10 11

16. $r > 10$
5 6 7 8 9 10 11

17. $p < 97 + 3$
96 97 98 99 100 101

18. $p \neq 97 + 3$
96 97 98 99 100 101

19. $p > 97 + 3$
96 97 98 99 100 101

20. $s + 62 < 69$
3 4 5 6 7 8 9

21. $s + 62 \neq 69$
3 4 5 6 7 8 9

22. $s + 62 > 69$
3 4 5 6 7 8 9

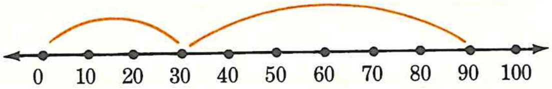
23. Decode the secret message.

A	B	C	D	E	F	G	H	I	J	K	L	M
0	1	2	3	4	5	6	7	8	9	10	11	12
N	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
13	14	15	16	17	18	19	20	21	22	23	24	25

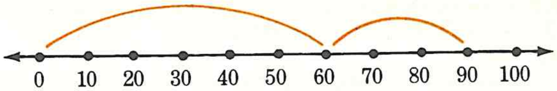
0+0	6+7	▨	2+2	9+2	3+1	8+7	5+2	0+0	5+8	10+9
2+0	0+0	10+3	11+8	▨	12+7	9+8	0+0	9+12	4+0	5+6
10+12	3+5	13+6	3+4	6+8	8+12	14+5	▨	1+6	6+2	9+9
			15+4	11+6	9+11	9+4	4+6			

Jack and Don entered a jumping contest.

From the starting point on the line, Jack's first jump put him on the 30 mark. His second jump moved him along 60 more places.



From the starting point on the line, Don's first jump put him on the 60 mark. His second jump moved him along 30 more places.



This contest was a tie.

1. Where did Jack land?
2. Where did Don land?

$30 + 60 = 60 + 30$

Copy and complete.

3. $430 + 350 =$ ___?___ 75
   $350 + 430 =$ ___?___ 45

4. $508 + 280 =$ ___?___ 48
   $280 + 508 =$ ___?___ 91

5. $765 + 234 =$ ___?___ 47
   $234 + 765 =$ ___?___ 81

---

6. Changing the order of two addends does not change the ___?___.
7. If a and b are whole numbers,
   then $a + b =$ ___?___ + ___?___. (Copy and complete this equation.)

Addition of whole numbers is commutative.

Find the sums.

8. $957+0=$ ___?___ 45
9. $782+0=$ ___?___ 21
10. $0+648=$ ___?___ 45
11. $0+525=$ ___?___ 42
12. $957+22=$ ___?___ 45
13. $782+16=$ ___?___ 56
14. $11+648=$ ___?___ 79
15. $14+525=$ ___?___ 81

16. If the sum of two addends is equal to one of the addends, then the other addend is ___?___.

17. If zero is not one of the addends, then the ___?___ is not equal to either of the addends.

18. If n is a whole number,
    then $n + 0 = 0 + n =$ ___?___. (Copy and complete this equation.)

Zero is the identity element for addition.

Ken and Dale put three different kinds of railroad cars on a track.

1. To the 3 boxcars Ken joined the 4 oil cars. To these _?_ cars he then joined the 5 coal cars.

2. To the 4 oil cars Dale joined the 5 coal cars. To the 3 boxcars he joined these _?_ cars.

Each boy then wrote an equation for the way he had joined the cars. Copy and solve both equations.

3. $(3 + 4) + 5 = \underline{\ ?\ }$
$\square + 5 = \underline{\ ?\ }$
Ken's equation

4. $3 + (4 + 5) = \underline{\ ?\ }$
$3 + \square = \underline{\ ?\ }$
Dale's equation

Copy and complete each equation.

5. $(12 + 3) + 4 = \square + 4 = \underline{\ ?\ }$
$12 + (3 + 4) = 12 + \square = \underline{\ ?\ }$

6. $(4 + 8) + 7 = \square + 7 = \underline{\ ?\ }$
$4 + (8 + 7) = 4 + \square = \underline{\ ?\ }$

7. $(5 + 6) + 3 = \square + 3 = \underline{\ ?\ }$
$5 + (6 + 3) = 5 + \square = \underline{\ ?\ }$

8. $(3 + 9) + 5 = \square + 5 = \underline{\ ?\ }$
$3 + (9 + 5) = 3 + \square = \underline{\ ?\ }$

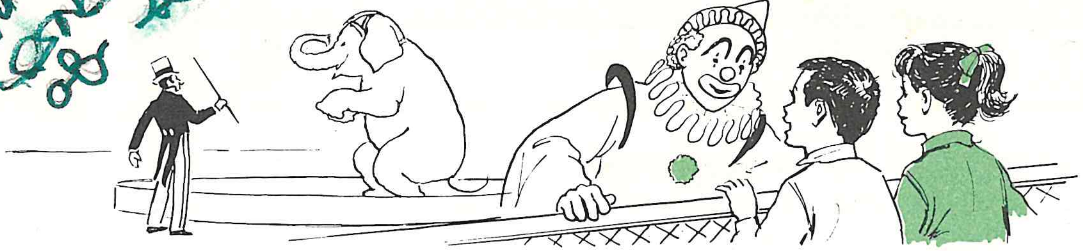
9. $(43 + 0) + 15 = \square + 15 = \underline{\ ?\ }$
$43 + (0 + 15) = 43 + \square = \underline{\ ?\ }$

10. $(20 + 7) + 12 = \square + 12 = \underline{\ ?\ }$
$20 + (7 + 12) = 20 + \square = \underline{\ ?\ }$

11. Changing the way in which three addends are grouped, or associated, does not change the _?_.

12. If a and b are whole numbers,
then $(a + b) + c = \underline{\ ?\ } + (\underline{\ ?\ } + \underline{\ ?\ })$.
(Copy and complete this equation.)

Addition of whole numbers is associative.



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. In the spring, the circus came to Clearfield. The men spent 6 hours unloading the train, then 9 hours setting up the tents, and then 3 hours putting up seats. How long did the men work?

$6+9+3=n$

$6+9+3=?$

2. Fred counted the animals as the first two cars were unloaded. There were 8 tigers, 6 lions, and 4 zebras in these cars. How many animals did Fred count?

3. The elephant act lasted 10 minutes. The horse act lasted 15 minutes. The clowns performed for 13 minutes. How long did these acts last?

4. Tom and Jim took water to the elephants. One elephant drank 5 pails of water. Another drank 8 pails. A third drank 4 pails. How many pails of water did the elephants drink?

5. In the center ring, 7 ponies were performing. The trainer blew his whistle and more ponies came into the ring. Now there were 15 ponies. How many ponies came into the ring when the whistle blew?

6. Ray had some peanuts. He fed 13 of them to the elephants and ate the rest. If Ray had 19 peanuts to begin with, how many did he eat?

7. In the center ring, 14 tigers were getting ready to jump through a ring of fire. Jill watched as 6 of the tigers jumped through the ring. How many tigers still had to jump through the ring?

Find the sums.

8. $\begin{array}{r} 6 \\ 7 \\ +\ 4 \\ \hline \end{array}$ **9.** $\begin{array}{r} 8 \\ 0 \\ +\ 9 \\ \hline \end{array}$ **10.** $\begin{array}{r} 12 \\ 4 \\ +\ 53 \\ \hline \end{array}$ **11.** $\begin{array}{r} 16 \\ 1 \\ +\ 50 \\ \hline \end{array}$ **12.** $\begin{array}{r} 421 \\ 6 \\ +\ 72 \\ \hline \end{array}$ **13.** $\begin{array}{r} 320 \\ 64 \\ +\ 514 \\ \hline \end{array}$

14. $\begin{array}{r} 43 \\ 24 \\ +\ 32 \\ \hline \end{array}$ **15.** $\begin{array}{r} 925 \\ 41 \\ +\ 20 \\ \hline \end{array}$ **16.** $\begin{array}{r} 30 \\ 15 \\ +\ 44 \\ \hline \end{array}$ **17.** $\begin{array}{r} 50 \\ 104 \\ +\ 33 \\ \hline \end{array}$ **18.** $\begin{array}{r} 411 \\ 132 \\ +\ 342 \\ \hline \end{array}$ **19.** $\begin{array}{r} 208 \\ 130 \\ +\ 361 \\ \hline \end{array}$

Copy and complete each table.

Addend	Addend	Sum	Equation
7	9	16	7+9=16
8	?	14	?
?	5	17	?
?	9	19	?
23	?	27	?
21	?	35	?
?	15	28	?

Addend	Addend	Sum	Equation
16	?	38	?
?	32	49	?
?	20	91	?
51	?	78	?
?	30	67	?
?	41	73	?
14	?	54	?

SUBTRACTION OF WHOLE NUMBERS

Sometimes a plus sign is used in an equation with a *missing addend.*

Sometimes a minus sign is used in an equation with a missing addend.

1. 6 + n = 10

2. n + 6 = 10

3. 10 − 6 = n

4. In each equation, 6 is the known __?__, n holds a place for a name of the __?__ addend, and 10 is the __?__. The missing addend is __?__.

Find the missing addends.

5. 9 + 6 = 15
15 − 6 = 9

6. __?__ + 5 = 12
12 − 5 = __?__

7. 6 + __?__ = 14
14 − 6 = __?__

8. 3 + __?__ = 11
11 − 3 = __?__

9. __?__ + 4 = 19
19 − 4 = __?__

10. 8 + __?__ = 18
18 − 8 = __?__

11. 7 + __?__ = 59
59 − 7 = __?__

12. __?__ + 14 = 27
27 − 14 = __?__

13. __?__ + 25 = 46
46 − 25 = __?__

14. 8 + __?__ = 15
15 − 8 = __?__

15. __?__ + 8 = 17
17 − 8 = __?__

16. 7 + __?__ = 13
13 − 7 = __?__

17. __?__ + 9 = 18
18 − 9 = __?__

18. 3 + __?__ = 14
14 − 3 = __?__

19. 7 + __?__ = 19
19 − 7 = __?__

20. 5 + __?__ = 38
38 − 5 = __?__

21. __?__ + 18 = 59
59 − 18 = __?__

[redacted] __?__ + 50 = 93
93 − 50 = __?__

Subtraction can be used to find a missing addend.

23. To find a missing addend, subtract the __?__ from the __?__.

The missing addend is often called the *difference.*

8 + n = 15 n + 8 = 15 15 − 8 = n

24. In each equation, n holds a place for a name of the __?__.

25. In each equation, the difference is the number __?__.

Copy and complete each equation.

1. 7 + 4 = 11
11 − 4 = 7

2. ? + 5 = 13
13 − 5 = ?

3. ? + 6 = 11
11 − 6 = ?

4. 4 + ? = 12
12 − 4 = ?

5. 7 + ? = 87
87 − 7 = ?

6. 13 + ? = 95
95 − 13 = ?

7. 31 + ? = 181
181 − 31 = ?

8. 159 + ? = 199
199 − 159 = ?

9. ? + 701 = 958
958 − 701 = ?

10. ? + 325 = 689
689 − 325 = ?

11. 13 − 4 = 9
9 + 4 = 13

12. ? − 8 = 8
8 + 8 = ?

13. ? − 7 = 9
9 + 7 = ?

14. ? − 8 = 7
7 + 8 = ?

15. ? − 16 = 30
30 + 16 = ?

16. ? − 63 = 21
21 + 63 = ?

17. ? − 130 = 362
362 + 130 = ?

18. ? − 396 = 401
401 + 396 = ?

19. ? − 707 = 271
271 + 707 = ?

20. ? − 666 = 231
231 + 666 = ?

21. ? − 748 = 210
210 + 748 = ?

Copy the problems, writing the correct digit in place of each ☐.

	A	B	C	D
22.	6 + 12 18	38 + 61 99	340 + 241 581	593 + 205 798
23.	368 − 243 125	659 − 125 574	847 − 213 634	916 − 805 111

Copy the statements.
Write *T* before each true statement.
Write *F* before each false statement.

1. 15 − 9 = 16 − 10
2. 28 − 13 ≠ 27 − 14
3. 67 − 52 ≠ 78 − 63
4. 35 − 15 = 33 − 13
5. 58 − 43 = 85 − 34
6. 96 − 64 ≠ 69 − 46
7. 124 − 110 = 324 − 210
8. 588 − 388 = 855 − 655
9. 234 − 123 = 432 − 321
10. 604 − 403 ≠ 309 − 108
11. 783 − 580 ≠ 508 − 305
12. 439 − 207 = 262 − 30
13. 987 − 654 = 765 − 543
14. 155 − 105 = 290 − 240
15. 486 − 186 ≠ 402 − 202
16. 137 − 137 ≠ 938 − 938

The statement at the top of each box is false. For each false statement, write three true statements. Use two numerals from the false statement to write each true statement.

17. 15 − 7 = 9
16 − 7 = 9
15 − 6 = 9
15 − 7 = 8

18. 18 − 12 = 7
___?___ − 12 = 7
18 − ___?___ = 7
18 − 12 = ___?___

19. 46 − 25 = 20
___?___ − 25 = 20
46 − ___?___ = 20
46 − 25 = ___?___

20. 59 − 37 = 21
21. 117 − 9 = 109
22. 316 − 8 = 307

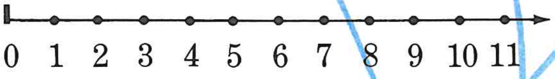
23. 419 − 9 = 409
24. 215 − 10 = 206
25. 906 − 805 = 100

26. 736 − 620 = 115
27. 844 − 321 = 533
28. 173 − 152 = 111

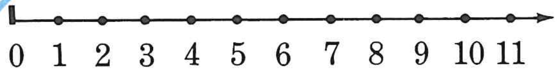
Copy and complete each numbered sentence.

Mary and Jane planned to start a garden.

Starting at the garden wall, Mary marked off a row 7 feet long for her tomato plants. She then measured off 4 more feet for her cabbage plants.



Starting at the garden wall, Jane marked off a row 4 feet long for her cabbage plants. She then measured off 7 more feet for her tomato plants.



1. Each girl had measured a row ___?___ feet long.

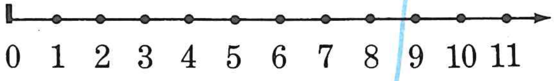
Mary and Jane knew that order does not matter when adding two whole numbers.

2. They knew that ___?___ is commutative.

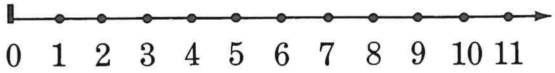
3. 7 + 4 ○ 4 + 7

When Mary weeded her garden, she began 7 feet from the wall and moved back along the row for 4 feet.

4. She was now ___?___ feet from the garden wall.



Then Mary tried to play a joke on Jane. She told her to begin 4 feet from the wall and move back along the row for 7 feet. Jane laughed.



5. Mary and Jane knew that there is no ___?___ number that would solve the problem 4 − 7 = □.

6. They decided that order does matter when ___?___ one whole number from another.

7. 7 − 4 ○ 4 − 7

8. Subtraction is not ___?___.

Copy and complete each numbered sentence.

Mark told Dick that he could group three numbers in two different ways when adding and get the same sum.

1. (6 + 2) + 1 = □ + 1 = ?
2. 6 + (2 + 1) = 6 + □ = ?
3. Mark told Dick that ? is associative.
4. (6 + 2) + 1 ○ 6 + (2 + 1)

Dick wondered if Mark could group the three numbers in two different ways when subtracting and get the same difference.

5. (6 − 2) − 1 = □ − 1 = ?
6. 6 − (2 − 1) = 6 − □ = ?
7. Dick found out that subtraction is ?.
8. (6 − 2) − 1 ○ 6 − (2 − 1)

Copy and solve each equation.

9. 13 − 0 = ?
10. 71 − 0 = ?
11. 150 − 0 = ?
12. 419 − 0 = ?
13. 825 − 0 = ?
14. 633 − 0 = ?
15. 366 − 0 = ?
16. 710 − 0 = ?
17. 17 − 17 = ?
18. 58 − 58 = ?
19. 192 − 192 = ?
20. 873 − 873 = ?
21. 501 − 501 = ?
22. 340 − 340 = ?
23. 264 − 264 = ?
24. 436 − 436 = ?
25. When ? is subtracted from a given number, the difference is equal to the given number.
26. When any number is subtracted from itself, the difference is ?.
27. If n is a whole number, then n − 0 = ? and n − n = ?.

Copy each sentence, writing $>$, $<$, or $=$ in place of the $\bigcirc$.

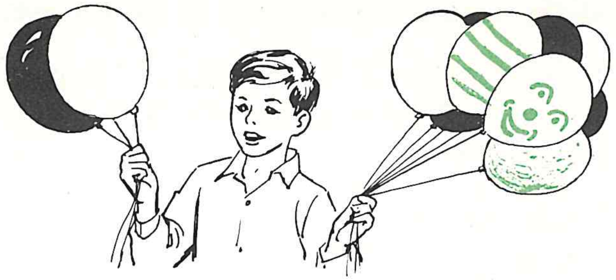
1. $10 + 0 \bigcirc 10 - 0$
2. $42 + 17 \bigcirc 24 + 71$
3. $63 - 31 \bigcirc 36 - 13$
4. $54 + 23 \bigcirc 99 - 22$
5. $41 + 14 \bigcirc 11 + 44$
6. $35 - 15 \bigcirc 65 - 45$
7. $77 - 11 \bigcirc 99 - 33$
8. $84 - 40 \bigcirc 48 + 40$
9. $96 - 52 \bigcirc 44 + 52$
10. $60 - 30 \bigcirc 30 - 30$
11. $70 + 16 \bigcirc 60 + 26$
12. $95 - 40 \bigcirc 40 + 55$
13. $107 + 9 \bigcirc 116 - 9$
14. $211 - 0 \bigcirc 211 - 211$
15. $528 - 28 \bigcirc 500 - 0$
16. $567 + 56 \bigcirc 657 - 55$

For each story problem, write an equation and solve it.
Then write a sentence to answer each question.

17. Jerry had 87 papers to deliver. Mike helped Jerry deliver 23 of these papers. How many papers must Jerry deliver by himself?

18. Patty and Ellen helped dry dishes after the club party. Patty dried 65 dishes. Ellen dried 31 dishes. How many more dishes did Patty dry than Ellen?

19. Donna brought 48 cookies to the club party. After the party, there were 13 cookies left over. If each child had one cookie, how many children came to the party?



For each story problem, write an equation and solve it.
Then write a sentence to answer each equation.

1. Sherry and Kay made 29 aprons for the school carnival. They sold 23 of the aprons. How many aprons were not sold?

2. Paul and Dave sold tickets for the bowling game. Paul sold 79 tickets. Dave sold 36 fewer tickets than Paul. How many tickets did Dave sell?

3. Frank worked at the Fish Pond. During the evening, 84 boys and 53 girls fished at the pond. How many more boys than girls fished at the pond?

4. Benny was in charge of the balloon sale. He had 31 balloons left when the carnival ended. If he began with 65 balloons, how many balloons did he sell?

Copy and complete each sequence.

5. 59, 54, 4?5, 44, 1?0, ?, 29, ?, ?
6. 68, 61, 8?9, 4?4, 40, 33, ?, ?, 12
7. 73, 4?3, 61, 4?8, 49, 43, ?, ?, ?
8. 81, 73, 2?0, 3?6, ?, 41, 33, ?, 17
9. 35, 1?8, 49, 9?4, ?, 70, 77, ?, ?
10. 28, 8?9, 44, ?, 60, ?, ?, ?, 92

List all the equations that could be used to solve each problem.

1. Scott raked leaves for two weeks. He earned \$19 the first week and \$7 the second week. How much did Scott earn raking leaves?

2. Ronnie was given 17 tickets to sell for the school carnival. After a week, he had sold 9 tickets. How many did he have left to sell?

3. Bill helped the librarian put books on the shelves. He worked 17 hours in March and 9 hours in April. For how many hours did Bill help the librarian?

4. Nora wants to practice the clarinet for 13 hours this week. If she has practiced 8 hours already, how many more hours must Nora practice?

5. Karen played 8 games of jacks on Saturday and 13 games on Sunday. How many games did Karen play over the weekend?

6. Mary Lou saved \$13 during the summer. In September she spent \$8 for a new pair of shoes. How much money did Mary Lou have left?

$\boxed{\text{A}}$ $17-9=n$

$\boxed{\text{B}}$ $9+n=17$

$\boxed{\text{C}}$ $17+9=n$

$\boxed{\text{D}}$ $n+9=17$

$\boxed{\text{E}}$ $n=19+7$

$\boxed{\text{F}}$ $13-8=n$

$\boxed{\text{G}}$ $n+8=13$

$\boxed{\text{H}}$ $n=8+13$

$\boxed{\text{J}}$ $n=13-8$

$\boxed{\text{K}}$ $18-3=n$

Copy each sentence, writing + or − in place of the △.

7. $8 + 9 = 37 \triangle 20$

8. $23 + 16 = 49 \triangle 10$

9. $34 \triangle 13 = 55 - 34$

10. $76 - 44 = 44 \triangle 12$

11. $52 \triangle 11 = 95 - 32$

12. $68 - 35 = 57 \triangle 24$

13. $265 - 122 = 120 \triangle 23$

14. $147 \triangle 7 = 166 - 26$

15. $280 \triangle 18 = 250 + 48$

16. $429 - 16 = 410 \triangle 3$

17. $145 \triangle 45 = 590 - 490$

18. $315 \triangle 110 = 325 - 120$

REVIEW

1. Choose an item from the right-hand column to match each item in the left-hand column.

a. The first counting number

b. B ∪ A

c. $224 + 53 = 35 + 422$

d. The cardinal number of the set of three-eared rabbits

e. $243 + 342 = 342 + 243$

f. Finding a missing addend

g. $30 + 6$ 36

h. B is the set of six-legged chickens.

i. $(12 + 5) + 10 = 12 + (5 + 10)$

j. $20 + 16 = r$

1. zero
2. expanded notation for the number thirty-six
3. the empty set
4. union of two sets
5. standard numeral for the number thirty-six
6. a false statement
7. addition of whole numbers is commutative
8. addition of whole numbers is associative
9. one
10. digit
11. subtraction
12. an open sentence

Copy each sentence, writing >, <, or = in place of the ○. Name the difference between each of the two numbers compared.

2. $7 + 4$ ○ $9 + 9$ 7

3. $6 + 7$ ○ $3 + 8$ 2

4. $13 + 26$ ○ $24 + 15$

5. $25 + 34$ ○ $62 + 27$

6. $51 + 28$ ○ $99 - 20$

7. $5 + 8$ ○ $19 - 13$

8. $13 - 9$ ○ $15 - 7$

9. $8 - 6$ ○ $3 + 9$

10. $47 - 23$ ○ $48 - 25$

11. $63 + 11$ ○ $163 - 11$

Show the meaning of each of the circled digits.

Example:
3⑦2 7 × 10 or 70

1. 2④6
2. ④6 2
3. 6 2④
4. 3 5⑧
5. 5⑧3
6. ⑧3 5
7. 5⓪1
8. 1 5⓪
9. ⑥1 7
10. 7⑥1
11. 1 7⑥
12. ⑨2 5
13. 2 5⑨
14. 5⑨2

Which numbers make each sentence true?

15.	$7+9>n$	12 13 14 15 16 17
16.	$s+6>11$	3 4 5 6 7 8
17.	$14+r=29$	12 13 14 15 16 17
18.	$26+12\neq t$	34 35 36 37 38 39
19.	$35+c=58$	20 21 22 23 24 25
20.	$17-h>8$	7 8 9 10 11 12
21.	$29-m\neq 11$	15 16 17 18 19 20
22.	$44-24<k$	15 16 17 18 19 20
23.	$78-41=e$	35 36 37 38 39 40
24.	$g-71>20$	88 89 90 91 92 93

Write *T* if the statement is true.
Write *F* if the statement is false.

25. The sum of 27 and 35 is an odd number.

26. For any two sets A and B, $n(A) + n(B) = n(A \cup B)$.

27. The cardinal number of a set tells us how many elements the set contains.

28. Subtraction is not commutative, because 16 − 13 is not equal to 13 − 16.

29. In the equation $11 - 6 = n$, the letter n holds a place for the name of a difference.

30. The sum of 12 and 47 is an even number.

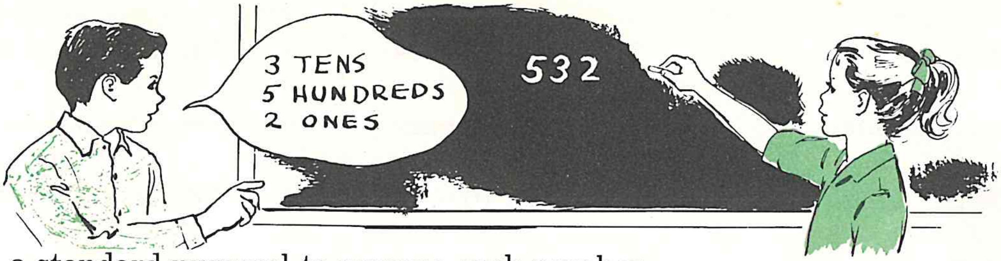
31. The identity element for addition is the number one.

32. Another name for a collection of objects is an element of a set.

33. To find the cardinal number of the union of any two sets, add the cardinal numbers of each of the sets.

34. In the numeral 800, the 0 in the tens place names the same number as the 0 in the ones place.

ADDITION OF WHOLE NUMBERS



Use a standard numeral to rename each number.

1. 6 ones, 7 tens, 0 hundreds 76
2. 2 hundreds, 3 ones, 5 tens 253
3. 4 hundreds, 2 tens, 7 ones
4. 8 ones, 5 hundreds, 0 tens
5. 9 tens, 7 hundreds, 5 ones
6. 4 tens, 9 ones, 6 hundreds
7. 8 hundreds, 1 ten, 0 ones
8. 6 tens, 3 hundreds, 2 ones
9. 0 hundreds, 8 tens, 1 one
10. 0 ones, 1 hundred, 3 tens
11. 7 hundreds, 4 ones, 4 tens
12. 5 tens, 9 hundreds, 8 ones
13. 0 tens, 3 hundreds, 9 ones
14. 1 hundred, 2 tens, 6 ones
15. 2 ones, 5 hundreds, 6 tens
16. 7 ones, 3 tens, 2 hundreds
17. 0 tens, 0 hundreds, 1 one
18. 3 ones, 9 tens, 8 hundreds

Use expanded notation to rename each number.

19. 80 + 15 = 90 + 5
20. 40 + 17 = 70 ? + 7
21. 70 + 11 = ? + 1
22. 80 + 14 = 90 + ?
23. 30 + 12 = ? + ?
24. 60 + 19 = ? + ?
25. 50 + 16 = ? + ?
26. 10 + 13 = ? + ?
27. 90 + 16 = 64 ? + 6
28. 80 + 11 = 41 ? + ?
29. 20 + 18 = 85 ? + ?
30. 70 + 12 = 49 ? + ?
31. 50 + 14 = 88 ? + ?
32. 30 + 15 = 41 ? + ?
33. 40 + 13 = 30 ? + ?
34. 60 + 17 = 51 ? + ?

Use a standard numeral to rename each number.

1. 2 tens, 14 ones
2. 6 tens, 15 ones
3. 1 ten, 11 ones
4. 5 tens, 13 ones
5. 8 tens, 19 ones
6. 4 tens, 16 ones
7. 3 tens, 18 ones
8. 7 tens, 12 ones
9. 8 tens, 20 ones
10. 9 tens, 10 ones
11. 7 tens, 15 ones
12. 4 tens, 11 ones
13. 2 tens, 19 ones
14. 9 tens, 12 ones
15. 1 ten, 10 ones
16. 3 tens, 14 ones
17. 6 tens, 13 ones
18. 8 tens, 16 ones
19. 5 tens, 10 ones
20. 10 tens, 0 ones
21. 7 tens, 21 ones

Copy each equation and complete the renaming of each number.

22. 300 + 60 + 13 = 300 + 70 + 3
23. 400 + 120 + 5 = B?A + 20P + 5
24. 600 + 150 + 18 = 600 + ? + 8 = ? + 60 + 8
25. 100 + 180 + 16 = 100 + ? + 6 = ? + 90 + 6
26. 800 + 110 + 10 = 800 + ? + 0 = ? + 20 + 0
27. 500 + 90 + 10 = 500 + 100 + ? = 600 + ? + 0
28. 200 + 180 + 10 = 200 + 190 + ? = 300 + ? + 0
29. 700 + 130 + 15 = 700 + 140 + ? = 800 + ? + 5
30. 900 + 40 + 12 = 900 + ? + 2 = ? + 50 + 2
31. 100 + 190 + 19 = 100 + ? + 9 = ? + 0 + 9
32. 400 + 90 + 10 = 400 + ? + 0 = ? + 0 + 0

U

45 + 18 = n

$$\begin{array}{r} \overset{1}{4}\ 5 \\ +1\ 8 \\ \hline \end{array}$$

$$\begin{array}{r} 40 + 5 \\ +(10 + 8) \\ \hline \end{array}$$

_?_ + _?_ = _?_

45 + 18 = _?_

Copy and solve each equation.

1. 37 + 56 = b
37 + 56 = _?_

2. 45 + 29 = s
45 + 29 = _?_

3. y = 17 + 69
_?_ = 17 + 69

4. 43 + 12 + 35 = v
43 + 12 + 35 = _?_

5. 33 + 27 + 28 = e
33 + 27 + 28 = _?_

6. d = 48 + 29
16?58 = 48 + 29

7. 19 + 54 = c
19 + 54 = _?_

8. m = 47 + 18
_?_ = 47 + 18

9. w = 18 + 23 + 37
e? = 18 + 23 + 37

10. 17 + 39 + 42 = f
17 + 39 + 42 = _?_

11. 26 + 69 = r
26 + 69 = _?_

12. 19 + 12 = g
19 + 12 = _?_

13. 13 + 29 = k
13 + 29 = _?_

14. q = 35 + 13 + 49
_?_ = 35 + 13 + 49

15. 42 + 35 + 16 = h
42 + 35 + 16 = _?_

Write an equation and solve it. Then write a sentence to answer the question.

16. Last year there were 56 books in Mrs. Scott's classroom library. This year 37 books were purchased for the library. How many books are now in the library?

425 + 327 = y

$$\begin{array}{r} 4\overset{1}{2}5 \\ +327 \\ \hline \end{array}$$

$$\begin{array}{r} 400 + 20 + 5 \\ +(300 + 20 + 7) \\ \hline \end{array}$$

__?__ + __?__ + __?__ = __?__

425 + 327 = __?__

Copy and solve each equation.

1. 128 + 232 = f
128 + 232 = __?__

2. b = 312 + 169
__?__ = 312 + 169

3. 401 + 59 = a
401 + 59 = __?__

4. 137 + 240 + 118 = r
137 + 240 + 118 = __?__

5. q = 214 + 429 + 148
__?__ = 214 + 429 + 148

6. 423 + 159 = c
423 + 159 = __?__

7. 225 + 17 = p
225 + 17 = __?__

8. k = 713 + 78
__?__ = 713 + 78

9. 429 + 322 + 19 = e
429 + 322 + 19 = __?__

10. d = 9 + 237 + 526
__?__ = 9 + 237 + 526

11. g = 336 + 245
__?__ = 336 + 245

12. 636 + 259 = h
636 + 259 = __?__

13. w = 67 + 529
__?__ = 67 + 529

14. 253 + 216 + 218 = s
253 + 216 + 218 = __?__

15. m = 212 + 37 + 135
__?__ = 212 + 37 + 135

Write an equation and solve it. Then write a sentence to answer the question.

16. Tim read two books last week. He read 176 pages in one of the books, and 219 pages in the other book. How many pages did Tim read in the two books?

56 + 72 = a

$$\begin{array}{r} 5\ 6 \\ +7\ 2 \\ \hline \end{array}$$

$$\begin{array}{rcr} 50 & + & 6 \\ +(70 & + & 2) \\ \hline \end{array}$$

_?_ + _?_ = _?_

56 + 72 = _?_

Copy and solve each equation.

1. 51 + 92 = y

51 + 92 = 4824

2. e = 83 + 74

_?_ = 83 + 74

3. 51 + 65 = m

51 + 65 = _?_

4. x = 84 + 94

_?_ = 84 + 94

5. 55 + 74 = n

55 + 74 = _?_

6. d = 62 + 65

9+2 = 62 + 65

7. 52 + 84 = c

52 + 84 = 14+11

8. 64 + 92 = f

64 + 92 = 9+8

9. g = 72 + 73

16+6 = 72 + 73

10. 72 + 66 = p

72 + 66 = 32+2

11. 84 + 81 = k

84 + 81 = 48

12. v = 73 + 93

_?_ = 73 + 93

13. 73 + 82 = r

73 + 82 = _?_

14. q = 61 + 46

_?_ = 61 + 46

15. 84 + 63 = s

84 + 63 = _?_

Write an equation and solve it. Then write a sentence to answer the question.

16. When the United Nations began in 1945, 51 nations belonged to it. By the beginning of 1963, 59 more nations had joined. How many nations belonged to the United Nations at the beginning of 1963?

$581 + 353 = d$

$$\begin{array}{r} \overset{1}{5}\,8\,1 \\ +3\,5\,3 \\ \hline \end{array}$$

$$\begin{array}{r} 500 + 80 + 1 \\ +(300 + 50 + 3) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \\ \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

$581 + 353 = \underline{\ ?\ }$

Copy and solve each equation.

1. $246 + 382 = b$

$246 + 382 = \underline{\ ?\ }$

2. $160 + 654 = q$

$160 + 654 = \underline{\ ?\ }$

3. $365 + 384 = v$

$365 + 384 = \underline{\ ?\ }$

4. $h = 242 + 373 + 194$

$\underline{\ ?\ } = 242 + 373 + 194$

5. $a = 250 + 331 + 262$

$\underline{\ ?\ } = 250 + 331 + 262$

6. $e = 591 + 381$

$\underline{\ ?\ } = 591 + 381$

7. $282 + 622 = w$

$282 + 622 = \underline{\ ?\ }$

8. $294 + 564 = d$

$294 + 564 = \underline{\ ?\ }$

9. $c = 175 + 382 + 471$

$\underline{\ ?\ } = 175 + 382 + 471$

10. $n = 594 + 61 + 153$

$\underline{\ ?\ } = 594 + 61 + 153$

11. $f = 373 + 195$

$\underline{\ ?\ } = 373 + 195$

12. $434 + 271 = k$

$434 + 271 = \underline{\ ?\ }$

13. $494 + 335 = s$

$494 + 335 = \underline{\ ?\ }$

14. $t = 273 + 361 + 364$

$\underline{\ ?\ } = 273 + 361 + 364$

15. $m = 183 + 492 + 254$

$\underline{\ ?\ } = 183 + 492 + 254$

Write an equation and solve it. Then write a sentence to answer the question.

16. Bayfair School's band gave concerts on Friday and Saturday. On Friday, 363 people came. On Saturday, 556 people came. How many people came to the two band concerts?

$265 + 479 = n$

$$\begin{array}{r} \scriptstyle 1\;\;1\;\; \\ 2\;6\;5 \\ +4\;7\;9 \\ \hline \end{array}$$

$$\begin{array}{rcrcrcl} 200 & + & 60 & + & 5 & & \\ +(400 & + & 70 & + & 9) & & \\ \hline \underline{?} & + & \underline{?} & + & \underline{?} & & \\ 600 & + & \underline{?} & + & 4 & & \\ \underline{?} & + & 40 & + & 4 & = & \underline{?} \end{array}$$

$265 + 479 = \underline{?}$

Copy and solve each equation.

1. $599 + 275 = b$

$599 + 275 = \underline{?}$

2. $a = 236 + 397$

$\underline{?} = 236 + 397$

3. $d = 177 + 194 + 216$

$\underline{?} = 177 + 194 + 216$

4. $276 + 373 + 241 = k$

$276 + 373 + 241 = \underline{?}$

5. $145 + 679 = c$

$145 + 679 = \underline{?}$

6. $m = 239 + 187$

$\underline{?} = 239 + 187$

7. $339 + 286 + 122 = f$

$339 + 286 + 122 = \underline{?}$

8. $e = 258 + 43 + 554$

$\underline{?} = 258 + 43 + 554$

9. $p = 689 + 98$

$\underline{?} = 689 + 98$

10. $q = 376 + 346$

$\underline{?} = 376 + 346$

11. $254 + 436 + 257 = g$

$254 + 436 + 257 = \underline{?}$

12. $h = 624 + 59 + 113$

$\underline{1?7} = 624 + 59 + 113$

Write an equation and solve it. Then write a sentence to answer the question.

13. Mrs. Fisher grouped her class into three teams to sell seeds. Team I sold 179 boxes of seeds. Team II sold 288 boxes of seeds. Team III sold 187 boxes of seeds. How many boxes of seeds did Mrs. Fisher's class sell?

306 + 194 = m

$$\begin{array}{r} {}^{1}\,{}^{1} \\ 3\,0\,6 \\ +1\,9\,4 \\ \hline \end{array}$$

$$\begin{array}{rcrcrcl} 300 & + & 0 & + & 6 & & \\ +(100 & + & 90 & + & 4) & & \\ \hline \underline{\quad ? \quad} & + & \underline{\quad ? \quad} & + & \underline{\quad ? \quad} & & \\ 400 & + & \underline{\quad ? \quad} & + & 0 & & \\ \underline{\quad ? \quad} & + & 0 & + & 0 & = & \underline{\quad ? \quad} \end{array}$$

306 + 194 = $\underline{\quad ? \quad}$

Copy and solve each equation.

1. 503 + 337 = k

   503 + 337 = $\underline{\quad ? \quad}$

2. 207 + 370 + 385 = c

   207 + 370 + 385 = $\underline{\quad ? \quad}$

3. 730 + 67 + 133 = h

   730 + 67 + 133 = $\underline{\quad ? \quad}$

4. a = 30 + 662 + 208

   $\underline{\quad ? \quad}$ = 30 + 662 + 208

5. b = 40 + 509 + 57 + 34

   $\underline{\quad ? \quad}$ = 40 + 509 + 57 + 34

6. d = 690 + 410

   $\underline{\quad ? \quad}$ = 690 + 410

7. 60 + 408 + 433 = p

   60 + 408 + 433 = $\underline{\quad ? \quad}$

8. 248 + 42 + 210 = q

   248 + 42 + 210 = $\underline{\quad ? \quad}$

9. n = 780 + 72 + 108

   $\underline{\quad ? \quad}$ = 780 + 72 + 108

10. g = 207 + 82 + 81 + 30

    $\underline{\quad ? \quad}$ = 207 + 82 + 81 + 30

11. e = 508 + 392

    $\underline{\quad ? \quad}$ = 508 + 392

12. 505 + 40 + 108 = r

    505 + 40 + 108 = $\underline{\quad ? \quad}$

13. 703 + 99 + 188 = s

    703 + 99 + 188 = $\underline{\quad ? \quad}$

14. f = 403 + 307 + 190

    $\underline{\quad ? \quad}$ = 403 + 307 + 190

15. v = 500 + 208 + 78 + 14

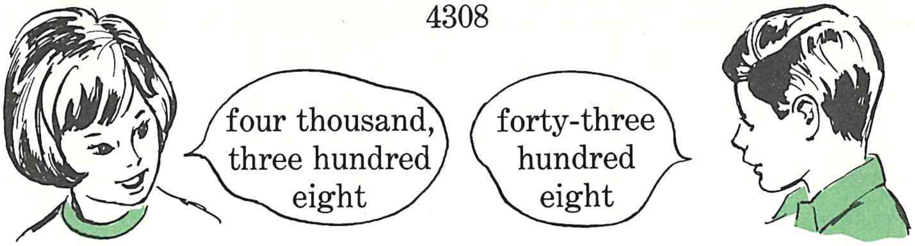
    $\underline{\quad ? \quad}$ = 500 + 208 + 78 + 14

Write an equation and solve it. Then write a sentence to answer the question.

16. Lance's father weighs 175 pounds, Lance weighs 108 pounds, and Rusty, their puppy, weighs 34 pounds. How much do they weigh all together?

SUBTRACTION OF WHOLE NUMBERS

4308


four thousand, three hundred eight
forty-three hundred eight

Write the standard numeral for each number named.

1. six thousand, three hundred seventy-nine
2. fifty-two hundred eighty-three
3. seven thousand, four
4. twenty-six hundred three
5. three thousand, five hundred
6. ninety-one hundred eighty-six
7. one thousand, four hundred nine
8. forty-five hundred ten
9. eight thousand, nine hundred twelve

Rewrite the numerals to show the order of the numbers.

		Greatest			Least
10.	3967	?	11.	3091	?
	2014	?		1093	?
	3796	?		1390	?
	3679	?		1930	?
	4021	?		1039	?
	4201	?		3119	?
	4012	?		3901	?
		Least			Greatest

Use a standard numeral to rename each number.

	A	B	C
1.	5 + 4000 + 30 + 100	500 + 3000 + 6 + 70	900 + 5 + 6000 + 40
2.	8000 + 9 + 700 + 20	80 + 5000 + 200 + 3	5000 + 500 + 90 + 9
3.	400 + 0 + 10 + 6000	7 + 100 + 4000 + 50	300 + 0 + 10 + 8000
4.	90 + 900 + 2000 + 1	2 + 8000 + 700 + 10	100 + 4000 + 20 + 8
5.	8 + 1000 + 300 + 50	1000 + 60 + 800 + 1	70 + 700 + 7000 + 2
6.	60 + 800 + 7000 + 4	600 + 50 + 3000 + 7	6000 + 3 + 200 + 80
7.	9000 + 600 + 40 + 2	6 + 9000 + 400 + 30	1 + 50 + 600 + 1000

Copy and complete each equation.

8. 90 + 5 = 80 + 15

9. 50 + 6 = 40 + ?

10. 100 + 3 = ? + 13

11. 300 + 5 = 290 + ?

12. 900 + 2 = ? + 12

13. 500 + 40 + 9 = 500 + ? + 19

14. 800 + 70 + 6 = 800 + 60 + ?

15. 700 + 20 + 8 = ? + 120 + 8

16. 400 + 10 + 3 = 300 + ? + 3

17. 200 + 30 + 1 = ? + 130 + 1

18. 700 + 60 + 4 = 700 + 50 + ? = 600 + ? + 14

19. 200 + 80 + 5 = 200 + 70 + ? = 100 + ? + 15

20. 600 + 40 + 2 = ? + 30 + 12 = ? + 130 + 12

21. 900 = 800 + ? = 800 + ? + 10

22. 500 = 400 + ? = 400 + 90 + ?

23. 400 = ? + 100 = 300 + ? + 10

$47 - 28 = a$

$$\begin{array}{r} \overset{3}{\cancel{4}}\,{}^{1}7 \\ -2\ 8 \\ \hline \end{array}$$

$$\begin{array}{r} 40 + 7 \\ -(20 + 8) \\ \hline \end{array} \quad \rightarrow \quad \begin{array}{r} 30 + \underline{\ ?\ } \\ -(20 + 8) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

$47 - 28 = \underline{\ ?\ }$

Copy and solve each equation.

1. $68 - 49 = c$

$68 - 49 = \underline{\ ?\ }$

2. $57 + g = 81$

$57 + \underline{\ ?\ } = 81$

3. $85 - 46 = k$

$85 - 46 = \underline{\ ?\ }$

4. $46 + p = 74$

$46 + \underline{\ ?\ } = 74$

5. $e + 48 = 64$

$\underline{\ ?\ } + 48 = 64$

6. $62 - 15 = y$

$62 - 15 = \underline{\ ?\ }$

7. $33 + w = 91$

$33 + \underline{\ ?\ } = 91$

8. $41 - 24 = q$

$41 - 24 = \underline{\ ?\ }$

9. $37 + h = 73$

$37 + \underline{\ ?\ } = 73$

10. $56 - 29 = f$

$56 - 29 = \underline{\ ?\ }$

11. $28 + m = 66$

$28 + \underline{\ ?\ } = 66$

12. $82 - 28 = r$

$82 - 28 = \underline{\ ?\ }$

Write an equation and solve it. Then write a sentence to answer the question.

13. Karen made a quilt from squares of green and yellow material. The quilt has 81 squares, and 48 of them are green. How many yellow squares are in the quilt?

572 − 246 = m

$$\begin{array}{r} 5\ \overset{6}{\cancel{7}}\,{}^{1}2 \\ -2\ 4\ 6 \\ \hline \end{array}$$

$$\begin{array}{r} 500 + 70 + 2 \\ -(200 + 40 + 6) \\ \hline \end{array} \rightarrow \begin{array}{r} 500 + 60 + \underline{\ ?\ } \\ -(200 + 40 + 6) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

572 − 246 = ?

Copy and solve each equation.

1. 572 − 359 = c
   572 − 359 = ?
2. 781 − 476 = k
   781 − 476 = ?
3. 158 + w = 694
   158 + ? = 694
4. d + 118 = 883
   ? + 118 = 883
5. 125 + q = 742
   125 + ? = 742
6. 164 + m = 373
   164 + ? = 373
7. 651 − 418 = e
   651 − 418 = ?
8. g + 713 = 941
   ? + 713 = 941
9. 693 − 216 = r
   693 − 216 = ?
10. 571 − 234 = p
    571 − 234 = ?
11. 419 + h = 525
    419 + ? = 525
12. 842 − 636 = f
    842 − 636 = ?

Write an equation and solve it. Then write a sentence to answer the question.

13. Kenneth collects baseball cards. He now has 127 cards in his collection. How many more cards must he save to have 235?

$729 - 267 = p$

$$\begin{array}{r} \overset{6}{\cancel{7}}\,{}^{1}2\;9 \\ -2\;6\;7 \\ \hline \end{array}$$

$$\begin{array}{r} 700 + 20 + 9 \\ -(200 + 60 + 7) \\ \hline \end{array} \rightarrow \begin{array}{r} 600 + \underline{\ ?\ } + 9 \\ -(200 + 60 + 7) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

$729 - 267 = \underline{\ ?\ }$

Copy and solve each equation.

1. $629 - 295 = w$
   $629 - 295 = \underline{\ ?\ }$

2. $v + 173 = 948$
   $\underline{\ ?\ } + 173 = 948$

3. $629 - 136 = s$
   $629 - 136 = \underline{\ ?\ }$

4. $p + 441 = 713$
   $\underline{\ ?\ } + 441 = 713$

5. $878 - 485 = y$
   $878 - 485 = \underline{\ ?\ }$

6. $593 + m = 769$
   $593 + \underline{\ ?\ } = 769$

7. $k + 494 = 756$
   $\underline{\ ?\ } + 494 = 756$

8. $489 + h = 969$
   $489 + \underline{\ ?\ } = 969$

9. $u + 262 = 924$
   $\underline{\ ?\ } + 262 = 924$

10. $758 - 186 = n$
    $758 - 186 = \underline{\ ?\ }$

11. $837 - 670 = b$
    $837 - 670 = \underline{\ ?\ }$

12. $819 - 358 = d$
    $819 - 358 = \underline{\ ?\ }$

Write an equation and solve it. Then write a sentence to answer the question.

13. Stewart's father is a lumberjack. This week he and the other lumberjacks hope to cut 215 trees. If they have cut 174 trees already, how many more must they cut?

$207 - 152 = k$

$$\begin{array}{r} \overset{1}{\cancel{2}}\;{}^{1}0\;7 \\ -1\;5\;2 \\ \hline \end{array}$$

$$\begin{array}{r} 200 + 0 + 7 \\ -(100 + 50 + 2) \\ \hline \end{array} \longrightarrow \begin{array}{r} 100 + \underline{\;?\;} + 7 \\ -(100 + 50 + 2) \\ \hline \underline{\;?\;} + \underline{\;?\;} + \underline{\;?\;} = \underline{\;?\;} \end{array}$$

$207 - 152 = \underline{\;?\;}$

Copy and solve each equation.

1. $509 - 316 = y$

$509 - 316 = \underline{\;?\;}$

2. $377 - 186 = w$

$377 - 186 = \underline{\;?\;}$

3. $u + 371 = 805$

$\underline{\;?\;} + 371 = 805$

4. $a + 261 = 904$

$\underline{\;?\;} + 261 = 904$

5. $m + 812 = 907$

$\underline{\;?\;} + 812 = 907$

6. $406 - 285 = e$

$406 - 285 = \underline{\;?\;}$

7. $555 - 365 = v$

$555 - 365 = \underline{\;?\;}$

8. $114 + h = 707$

$114 + \underline{\;?\;} = 707$

9. $217 + p = 509$

$217 + \underline{\;?\;} = 509$

10. $486 - 394 = n$

$486 - 394 = \underline{\;?\;}$

11. $906 - 313 = d$

$906 - 313 = \underline{\;?\;}$

12. $800 - 430 = c$

$800 - 430 = \underline{\;?\;}$

Write an equation and solve it. Then write a sentence to answer the question.

13. Susan and Beth were making necklaces. Together they used 409 beads. If Susan used 267 beads, how many did Beth use?

981 − 286 = d

$$\begin{array}{r} 900 + 80 + 1 \\ -(200 + 80 + 6) \\ \hline \end{array} \rightarrow \begin{array}{r} 900 + 70 + \underline{\ ?\ } \\ -(200 + 80 + 6) \\ \hline \end{array}$$

$$\downarrow$$

$$\begin{array}{r} 800 + \underline{\ ?\ } + \underline{\ ?\ } \\ -(200 + 80 + 6) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

$$\begin{array}{r} \overset{8}{\cancel{9}}\ {}^{1}\overset{7}{\cancel{8}}\ {}^{1}1 \\ -2\ 8\ 6 \\ \hline \end{array}$$

175

981 − 286 = 69

Copy and solve each equation.

1. 954 − 397 = a
954 − 397 = ?

2. 665 − 366 = k
665 − 366 = ?

3. b + 289 = 773
? + 289 = 773

4. 837 − 584 = n
837 − 584 = ?

5. e + 657 = 936
279 + 657 = 936

6. g + 486 = 544
? + 486 = 544

7. 256 + h = 833
256 + ? = 833

8. 641 − 288 = q
641 − 288 = ?

9. 851 − 387 = f
851 − 387 = ?

10. 972 − 576 = v
972 − 576 = ?

11. 858 − 759 = m
858 − 759 = ?

12. 699 + p = 877
699 + ? = 877

600 − 368 = b

$$\begin{array}{r} 600 + 0 + 0 \\ -(300 + 60 + 8) \\ \hline \end{array} \rightarrow \begin{array}{r} 500 + \underline{\ ?\ } + 0 \\ -(300 + 60 + 8) \\ \hline \end{array}$$

$$\downarrow$$

$$\begin{array}{r} 500 + 90 + \underline{\ ?\ } \\ -(300 + 60 + 8) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = ? \end{array}$$

$$\begin{array}{r} \overset{5}{\cancel{6}}\ {}^{1}\overset{9}{\cancel{0}}\ {}^{1}0 \\ -3\ 6\ 8 \\ \hline \end{array}$$

600 − 368 = ?

Copy and solve each equation.

1. 700 $\overset{8}{-}$ 498 = d

   700 $\overset{7}{-}$ 498 = 89

2. 389 + e = 960

   389 + 368 = 960

3. 242 + c = 500

   242 + 45 = 500

4. 910 − 214 = k

   910 − 214 = 8?4

5. 105 + g = 511

   105 + 10075 511

6. 200 − 46 = f

   200 − 46 = 400

7. v + 347 = 700

   414 + 347 = 700

8. 804 − 219 = p

   804 − 219 = 7853

9. 900 − 241 = h

   900 − 241 = ?

10. 635 + m = 900

    635 + ? = 900

11. 500 − 321 = h

    500 − 321 = ?

12. 800 − 373 = q

    800 − 373 = ?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. The children in Mrs. Burg's class told about their summer adventures. All but 7 of the 25 children talked about trips their family had taken. How many children told about family trips?

2. Brett said that he went canoeing for five days. He canoed 21 miles the first day, 16 miles the second day, 28 miles the third day, 19 miles the fourth day, and 17 miles the fifth day. How many miles did Brett canoe?

3. Kent and Ron told the class about a swimming contest they entered. Kent swam 97 yards, and Ron swam 184 yards. How many more yards did Ron swim than Kent?

4. Margie and Alice told about their vegetable stand. One week they sold 45 sacks of green beans, 36 sacks of tomatoes, 29 sacks of carrots, 37 sacks of peppers, and 18 sacks of peas. How many sacks of vegetables did the girls sell that week?

5. Martha helped to plan a camping trip. Her family spent $56 for a tent, $15 for each of 4 sleeping bags, $23 for a food pack, and $14 for a cooking kit. How much did Martha's family spend for camping supplies?

6. In Michigan, Neal caught 27 blue pike and 38 perch. His brother caught 23 blue pike and 39 perch. How many fish did they catch? How many more perch than blue pike were caught?

For each story problem, write an equation and solve it.
Then write a sentence to answer each question.

7. Gordon said that he played baseball nearly every summer day. One morning 22 boys began playing baseball. By lunch time, only 9 boys were still playing. How many boys stopped playing before lunch time?

8. Sally had 236 rocks in her collection in June. By September, she had 335. How many rocks did Sally find for her collection during the summer?

Find the sums and differences.

	A	B	C	D	E	F
9.	434 +487	617 −318	320 −124	278 +588	978 −579	692 +249
10.	812 −276	827 −458	356 +389	543 +398	703 −217	900 −467

Find the sums in each row and column.

11.

23	18	46	32	a
23	19	55	31	b
14	18	34	50	c
12	27	43	64	d
e	f	g	h	S

12.

16	23	47	61	a
42	31	14	78	b
29	17	51	66	c
63	33	15	45	d
e	f	g	h	S

13.

12	23	62	60	a
35	24	31	72	b
36	17	49	84	c
68	38	48	57	d
e	f	g	h	S

Copy and complete each equation.

14. 215 + 639 = 900 − ___?___

15. 930 − 472 = ___?___ + 269

16. 343 + ___?___ = 915 − 136

17. ___?___ − 495 = 246 + 189

18. ___?___ + 238 = 916 − 457

19. 957 − ___?___ = 759 − 299

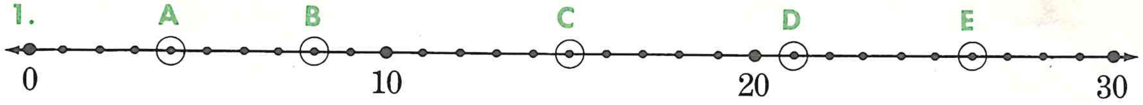
20. 345 + 576 = ___?___ + 663

21. 858 − 279 = 286 + ___?___

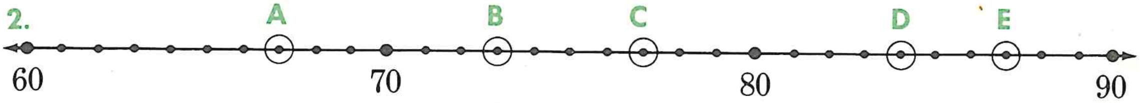
ESTIMATION

What is the number for the circled dot?

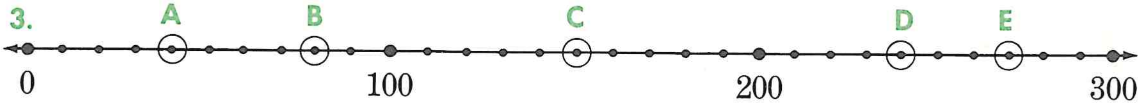
1.



2.



3.



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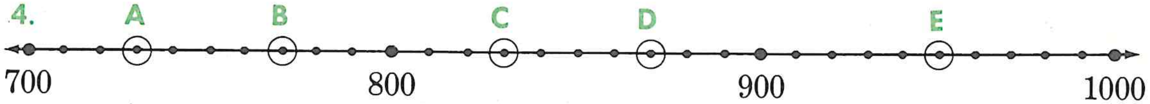
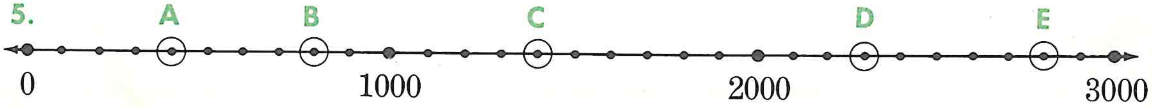
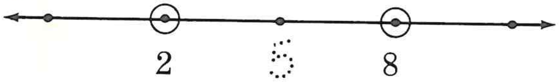


5.

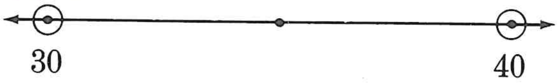


What is the number for the dot that is midway between the circled dots?

6.



7.



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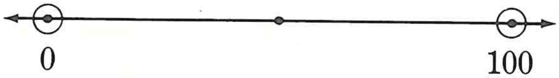
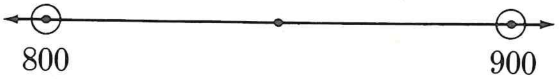
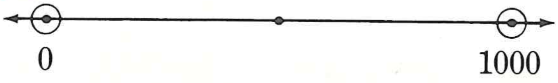


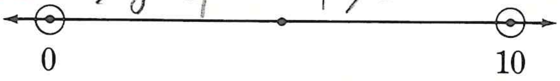
9.



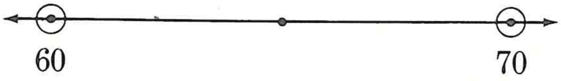
10.



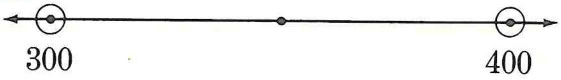
11. 784-4726



12.



13.



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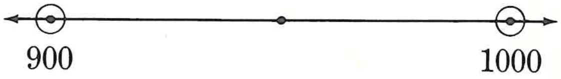
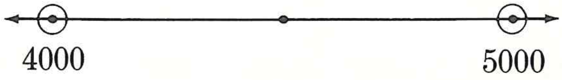
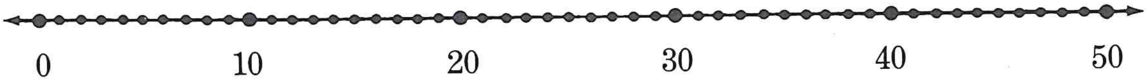


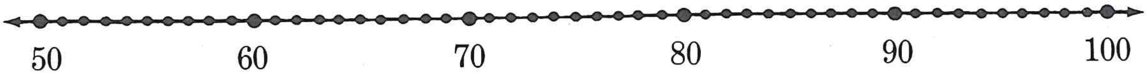
15.



Use the number lines to answer the questions.

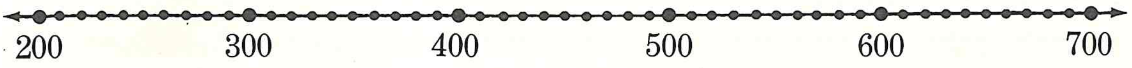


1. Is 12 nearer to 10 or to 20?
2. Is 18 nearer to 10 or to 20?
3. Is 36 nearer to 30 or to 40?
4. Is 9 nearer to 0 or to 10?
5. Is 5 nearer to 0 or to 10?
6. Is 27 nearer to 20 or to 30?
7. Is 44 nearer to 40 or to 50?
8. Is 17 nearer to 10 or to 20?
9. Is 28 nearer to 20 or to 30?
10. Is 45 nearer to 40 or to 50?
11. Is 2 nearer to 0 or to 10?
12. Is 49 nearer to 40 or to 50?
13. Is 33 nearer to 30 or to 40?
14. Is 14 nearer to 10 or to 20?

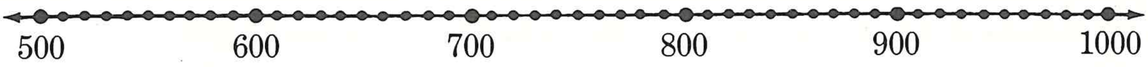


15. Is 64 about 60 or about 70?
16. Is 58 about 50 or about 60?
17. Is 72 about 70 or about 80?
18. Is 99 about 90 or about 100?
19. Is 83 about 80 or about 90?
20. Is 3 about 0 or about 10?
21. Is 55 about 50 or about 60?
22. What multiple of ten is nearest to 64?
23. What multiple of ten is nearest to 88?
24. What multiple of ten is nearest to 51?
25. What multiple of ten is nearest to 69?
26. What multiple of ten is nearest to 84?
27. What multiple of ten is nearest to 103?
28. What multiple of ten is nearest to 77?

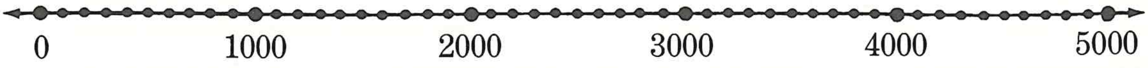
Use the number lines to answer the questions.



1. Is 280 nearer to 200 or to 300?
2. Is 476 nearer to 400 or to 500?
3. Is 560 nearer to 500 or to 600?
4. Is 690 nearer to 600 or to 700?
5. Is 410 nearer to 400 or to 500?
6. What multiple of 100 is nearest to 320?
7. What multiple of 100 is nearest to 350?
8. What multiple of 100 is nearest to 380?
9. What multiple of 100 is nearest to 426?
10. What multiple of 100 is nearest to 462?

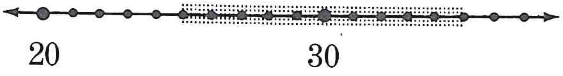


11. Is 689 nearer to 600 or to 700?
12. Is 537 nearer to 500 or to 600?
13. What multiple of 100 is nearest to 569?
14. What multiple of 100 is nearest to 750?
15. What multiple of 100 is nearest to 809?
16. Is 834 nearer to 830 or to 840?
17. Is 529 nearer to 520 or to 530?
18. What multiple of 10 is nearest to 787?
19. What multiple of 10 is nearest to 981?
20. What multiple of 100 is nearest to 981?



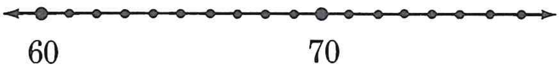
21. What multiple of 1000 is nearest to 1400?
22. What multiple of 1000 is nearest to 2900?
23. What multiple of 1000 is nearest to 4100?
24. What multiple of 1000 is nearest to 3129?
25. What multiple of 1000 is nearest to 4911?
26. Is 1900 nearer to 1000 or to 2000?
27. Is 400 nearer to 0 or to 1000?
28. Is 500 nearer to 0 or to 1000?
29. Is 2750 nearer to 2000 or to 3000?
30. Is 1899 nearer to 1000 or to 2000?

A number that is midway between two multiples is rounded to the greater multiple.

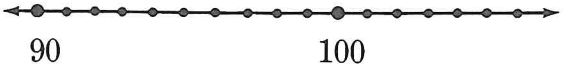


1. List all the numbers that are rounded to 30.

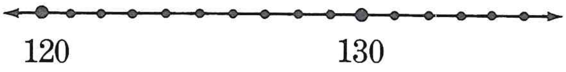
25, 26, 27, 28, 29, 30, 31, 32, 33, 34



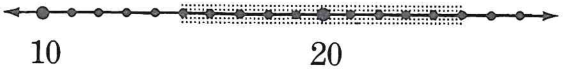
2. List all the numbers that are rounded to 70.



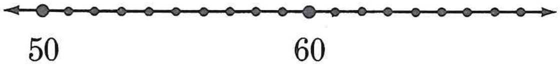
3. List all the numbers that are rounded to 100.



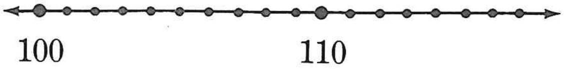
4. List all the numbers that are rounded to 130.



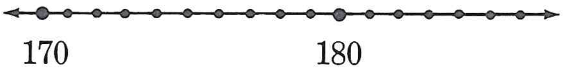
5. What numbers are about 20?



6. What numbers are about 60?



7. What numbers are about 110?



8. What numbers are about 180?

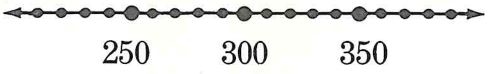
9. Mary had 48 stamps in her collection. How many stamps did Mary have, to the nearest multiple of ten?

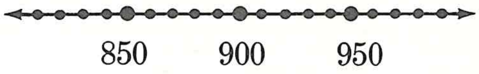
10. Frank's Christmas tree had 86 lights on it. How many lights did Frank's tree have, to the nearest multiple of ten?

11. Ruth's father earns 128 dollars each week. How many dollars does Ruth's father earn, to the nearest multiple of ten?

12. Bob has a quarter and a penny. How many cents does Bob have, to the nearest multiple of ten?

Round each number to the nearest multiple of one hundred.





1. 250 is about ? .
2. 251 is about ? .
3. 252 is about ? .
4. 348 is about ? .
5. 349 is about ? .
6. 350 is about ? .
7. 850 is about ? .
8. 949 is about ? .
9. 901 is about ? .
10. 940 is about ? .
11. 883 is about ? .
12. 950 is about ? .

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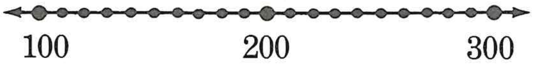
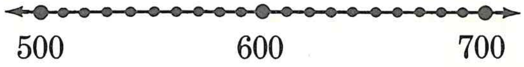
13. What numbers are about 200?



14. What numbers are about 600?



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15. Bill has $3.25. How many dollars does Bill have, to the nearest dollar?
16. Tim's father earned $5395 last year. How many dollars did Tim's father earn, to the nearest multiple of one hundred?
17. The population of Elm City is 739. What is Elm City's population to the nearest multiple of one hundred?
18. Tim has a dollar, a quarter, three dimes, and a penny. About how many dollars does Tim have?
19. Sue has 881 stamps. How many stamps does Sue have, to the nearest multiple of one hundred?
20. Elsie's mother had 929 trading stamps in her stamp book. How many stamps does Elsie's mother have, to the nearest multiple of one hundred?

Round to the nearest multiple of ten.

21. 17
22. 44
23. 42
24. 37
25. 43
26. 25
27. 372
28. 6
29. 118

Round to the nearest multiple of one hundred.

30. 170
31. 289
32. 908
33. 629
34. 837
35. 53
36. 5290
37. 7208
38. 29

1. Copy the table. Round each addend to the nearest multiple of 10. Estimate the sum by adding the multiples of 10. Then find the exact sum.

	Estimate	Exact
12 + 19	30	?
62 + 31	100600 ?	18 ?
58 + 42	?	?
77 + 52	?	?
35 + 24	?	?
45 + 15	?	?

2. Copy the table. Round each sum and known addend to the nearest multiple of 10. Estimate the difference by subtracting the multiples of 10. Then find the exact difference.

	Estimate	Exact
23 − 9	?	?
98 − 71	?	?
85 − 47	?	?
52 − 28	?	?
76 − 38	?	?
84 − 36	?	?

3. Copy the table. Round each addend to the nearest multiple of 100. Estimate the sum by adding the multiples of 100. Then find the exact sum.

	Estimate	Exact
190 + 170	?	?
680 + 130	?	?
280 + 320	?	?
576 + 321	?	?
449 + 287	?	?
366 + 175	?	?

4. Copy the table. Round each sum and known addend to the nearest multiple of 100. Estimate the difference by subtracting the multiples of 100. Then find the exact difference.

	Estimate	Exact
580 − 310	?	?
630 − 590	?	?
850 − 470	?	?
224 − 82	?	?
368 − 268	?	?
749 − 367	?	?

Write a sentence to answer the question.

1. The two fourth-grade classes at Dover School went to the library last Friday afternoon. There were 28 children from Mrs. Ferguson's class and 32 children from Mrs. Scott's class. To the nearest multiple of ten, how many children went to the library?
2. David counted 34 books in the library that he had read, and Bill counted 17 that he had read. To the nearest multiple of ten, how many books had David and Bill read?
3. Marilyn found a dictionary in two volumes. One volume was 822 pages long and the other was 886 pages long. To the nearest multiple of one hundred, the dictionary was how many pages long?
4. Judy paid 32 cents because her books were overdue. Susan paid 16 cents. To the nearest ten cents, how many cents did Judy and Susan pay?
5. The librarian showed Leslie a book about heroes and legends that cost $4.98, and a book about Holland that cost $7.98. To the nearest dollar, how much did these two books cost?
6. Mrs. Ferguson's class checked out 89 books, and Mrs. Scott's class checked out 53. Cathy said that to the nearest multiple of ten, this was about 150 books. Was she correct? How much is 89 plus 53 exactly?
7. The librarian told the classes that there are 8620 books in the main library, and 5260 books in the children's room. To the nearest multiple of one thousand, how many books are in the two rooms?
8. Todd wondered what the population of the United States was. He looked in an encyclopedia. It said that in 1960 the population was 179,323,175. To the nearest million, the population of the United States in 1960 was how many million?

ADDITION OF WHOLE NUMBERS

2945 + 1634 = b

$$\begin{array}{r} 2000 + 900 + 40 + 5 \\ +(1000 + 600 + 30 + 4) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } \\ 4000 + \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

$$\begin{array}{r} \overset{1}{2}\ 9\ 4\ 5 \\ +1\ 6\ 3\ 4 \\ \hline \end{array}$$

2945 + 1634 = ?

Copy and solve each equation.

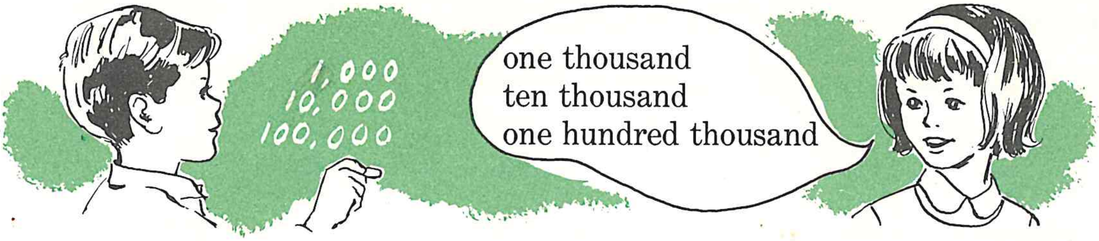
1. 724 + 553 = a
2. 1241 + 4834 = b
3. 2853 + 3836 = c
4. d = 1522 + 4761
5. 2721 + 3742 + 2832 = e
6. 902 + 866 = f
7. g = 3717 + 2952
8. h = 4940 + 1758
9. k = 7610 + 1881
10. 5851 + 504 + 2420 = m
11. 1754 + 2823 = n
12. 2731 + 4805 = p
13. 2843 + 5826 = r
14. 3946 + 2641 = s
15. 1433 + 712 + 3001 = t

Copy and complete each sentence, writing >, <, or = in place of the ○.

16. 2355 + 6842 ○ 4963 + 4234
17. 1730 + 3703 ○ 7103 + 995
18. 5426 + 2651 ○ 3542 + 4535
19. 8617 + 821 ○ 7771 + 1824
20. 3902 + 2553 ○ 2946 + 3443
21. 1501 + 4870 ○ 1426 + 5812

Write an equation and solve it. Then write a sentence to answer the question.

22. Mr. Hammond sells tickets at the zoo. He told Henry that he sold 4495 tickets in July and 4360 tickets in August. How many tickets did Mr. Hammond sell during July and August?



Use a standard numeral to rename each number.

1. one hundred thirty-six thousand, five hundred
2. five hundred two thousand, three hundred ninety
3. seven hundred sixty thousand, one
4. twenty thousand, eight hundred ten
5. eleven thousand, four hundred twelve
6. six hundred thousand, seven hundred eighty-eight
7. two hundred thousand, seventy
8. nine hundred five thousand, thirty-three
9. eight hundred twenty-three thousand, one hundred
10. thirty-nine thousand, six hundred fifty-two

Write a standard numeral for the number that is one greater than the given number.

11. 4989
12. 6909
13. 8009
14. 10,009
15. 21,599
16. 230,779
17. 610,999
18. 5999
19. 9819
20. 9999
21. 19,999
22. 109,109
23. 400,999
24. 808,999

Write a standard numeral for the number that is one less than the given number.

25. 2000
26. 4001
27. 8100
28. 20,000
29. 59,100
30. 300,000
31. 779,900
32. 3010
33. 6990
34. 5070
35. 30,010
36. 65,000
37. 401,500
38. 999,000

Find the sums.

	A	B	C	D	E
1.	5688 +2040	4161 +3267	7367 +2246	1569 +4154	4487 +4197
2.	3173 +2158	1488 +1722	1326 +3099	5287 +3757	5798 +2468
3.	6579 +4632	5387 +5616	4395 +3005	5030 +5977	5640 +2981

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

4. Last year Mayville elected a new mayor. Mr. Marshall got 23,854 votes. Mr. Barclay got 45,977 votes. How many votes did these two men get?

5

5. On Saturday 27,235 people saw the Cleveland Indians play the New York Yankees. On Sunday 51,748 people saw the same teams play again. How many people saw these games?

Find the sums.

	A	B	C	D	E
6.	43,466 +54,309	41,458 +15,217	28,242 +10,382	53,386 + 1,060	10,150 +13,099
7.	33,060 +25,871	936,533 + 61,237	168,375 +720,471	324,764 +301,802	28,102 +709,142
8.	175,436 +204,582	682,391 +239,509	34,659 +507,167	766,895 +553,386	623,518 +309,409

849

Find the sums.

1. 38,214
25,766
+44,853

2. 65,319
42,895
+37,721

3. 288
342
553
626
557
+764

4. 377
24
243
86
545
+ 35

5. 788,695
433,162
+342,567

6. 948,377
877,586
+435,487

Copy and complete each table. Find the sums in each row and column.

7.

30	8	?
40	9	?
70	7	?
60	5	?
50	4	?
?	?	?

8.

Table 16

20	9	?
80	5	?
70	8	?
80	2	?
40	7	?
?	?	?

9.

50	4	?
90	3	?
30	6	?
60	9	?
60	5	?
?	?	?

10.

600	90	4	?
100	30	3	?
200	70	7	?
300	50	8	?
500	40	6	?
?	?	?	?

Find the sums.

11. 268
755
41
102
35
6
+ 37

12. 406
983
92
217
21
645
86
+ 9

13. 427
94
83
13
76
71
+ 30

14. 538
59
743
582
560
71
+427

15. 826
95
492
305
82
624
+ 36

16. 455
104
385
246
353
837
62
+ 25

SUBTRACTION OF WHOLE NUMBERS

$2865 - 1923 = d$

$$\begin{array}{r}
2000 + 800 + 60 + 5\\
-(1000 + 900 + 20 + 3)\\
\hline
\end{array}$$

$$\begin{array}{r}
1000 + \underline{\ ?\ } + 60 + 5\\
-(1000 + 900 + 20 + 3)\\
\hline
\underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }
\end{array}$$

$$\begin{array}{r}
\overset{1}{\cancel{2}}\,{}^{1}8\;6\;5\\
-1\;9\;2\;3\\
\hline
\end{array}$$

$2865 - 1923 = \underline{\ ?\ }$

Copy and solve each equation.

1. $3365 - 2642 = q$ $3365 - 2642 = \underline{\ ?\ }$	5. $c + 2385 = 5298$ $\underline{\ ?\ } + 2385 = 5298$	9. $1697 - 995 = e$ $1697 - 995 = \underline{\ ?\ }$
2. $5250 = a + 3950$ $5250 = \underline{\ ?\ } + 3950$	6. $6698 - 4927 = b$ $6698 - 4927 = \underline{\ ?\ }$	10. $3164 - 1864 = n$ $3164 - 1864 = \underline{\ ?\ }$
3. $f + 1537 = 7379$ $\underline{\ ?\ } + 1537 = 7379$	7. $6211 = 3801 + g$ $6211 = 3801 + \underline{\ ?\ }$	11. $4229 - 1721 = h$ $4229 - 1721 = \underline{\ ?\ }$
4. $8334 - 1131 = k$ $8334 - 1131 = \underline{\ ?\ }$	8. $d + 3945 = 7498$ $\underline{\ ?\ } + 3945 = 7498$	12. $4359 - 831 = m$ $4359 - 831 = \underline{\ ?\ }$

Copy the problems, writing the correct numeral in place of each □.

13. $\begin{array}{r} 9\,\square\,8\\ -\ 8\,7\,\square\\ \hline \square\,0\,2 \end{array}$

14. $\begin{array}{r} \square\square\square\\ +\ \ 8\,4\\ \hline 8\,4\,7 \end{array}$

15. $\begin{array}{r} 9\,\square\,3\\ -\ 8\,3\,\square\\ \hline \square\,5\,8 \end{array}$

16. $\begin{array}{r} 2\,5\,6\\ +\ \square\square\square\\ \hline 6\,1\,8 \end{array}$

17. $\begin{array}{r} 9\,8\,3\\ -\ \square\square\,6\\ \hline 2\,3\,\square \end{array}$

Read the story problem. Then answer the questions.

Mr. Wilson's truck weighs 2725 pounds. As he came to a bridge, he saw a sign that read: "Load Limit 3000 pounds."

1. Could he cross the bridge safely?
2. How many pounds less than the limit did his truck weigh?

Solve these equations.

3. 2897 − 1368 = a
   2897 − 1368 = ?
4. 7683 − 4357 = d
   7683 − 4357 = ?
5. g + 2756 = 8125
   ? + 2756 = 8125
6. 7000 − 2635 = k
   7000 − 2635 = ?
7. 4261 − 1059 = b
   4261 − 1059 = ?
8. 3652 − 1475 = e
   3652 − 1475 = ?
9. 6127 − 1369 = h
   6127 − 1369 = ?
10. 3071 − 2293 = t
    3071 − 2293 = ?
11. 6951 − 1637 = c
    6951 − 1637 = ?
12. f + 2633 = 5831
    ? + 2633 = 5831
13. 7113 − 4267 = n
    7113 − 4267 = ?
14. m + 1858 = 2006
    ? + 1858 = 2006

Find the differences.

	A	B	C	D	E
15.	7495 −6514	8390 −2389	5104 −1362	4407 −2518	8155 −3479
16.	2110 −1264	7030 −2369	3999 −2041	9230 −2468	8000 −5466

9P Pf L

Copy and solve each equation.

1. 975,256 − 129,134 = r

975,256 − 129,134 = ?

2. a + 38,265 = 87,485

? + 38,265 = 87,485

3. 366,788 − 285,334 = h

366,788 − 285,334 = ?

4. 85,967 − 28,525 = m

85,967 − 28,525 = ?

5. 544,644 − 283,542 = p

544,644 − 283,542 = ?

6. 883,987 − 693,777 = t

883,987 − 693,777 = ?

Find the differences.

7. 69,347 − 63,187

8. 198,739 − 98,959

9. 68,547 − 49,711

10. 898,113 − 122,027

11. 45,418 − 41,329

12. 685,433 − 177,324

13. 139,328 − 128,681

14. 423,285 − 392,149

Rewrite the numerals to show the order of the numbers.

15.

	Greatest
131,090	?
311,900	?
113,009	?
113,900	?
313,099	?
111,339	?
303,093	?
	Least

16.

	Least
459,112	?
211,954	?
549,211	?
112,945	?
114,592	?
151,429	?
215,594	?
	Greatest

Copy and solve each equation.

1. $69{,}215 - r = 32{,}784$

$69{,}215 - \underline{\ ?\ } = 32{,}784$

2. $160{,}556 + p = 175{,}320$

$160{,}556 + \underline{\ ?\ } = 175{,}320$

3. $823{,}801 - 208{,}754 = k$

$823{,}801 - 208{,}754 = \underline{\ ?\ }$

4. $111{,}656 - 48{,}347 = t$

$111{,}656 - 48{,}347 = \underline{\ ?\ }$

5. $835{,}284 - e = 327{,}525$

$835{,}284 - \underline{\ ?\ } = 327{,}525$

6. $381{,}666 + a = 710{,}006$

$381{,}666 + \underline{\ ?\ } = 710{,}006$

Copy the problems, writing the correct digit in place of each □.

7.
$$\begin{array}{r} 6\ \boxed{4}\ 9 \\ +\ \boxed{7}\ 4\ 7 \\ \hline 8\ 7\ \boxed{9} \end{array}$$

8.
$$\begin{array}{r} 3\ 4\ 6\ \boxed{7} \\ -\ 1\ \boxed{5}\ \boxed{7}\ 4 \\ \hline \boxed{4}\ 7\ 6\ 2 \end{array}$$

9.
$$\begin{array}{r} 4\ 6\ 8 \\ -\ 2\ \boxed{4}\ \boxed{8} \\ \hline \boxed{1}\ 5\ 9 \end{array}$$

10.
$$\begin{array}{r} \boxed{6}\ \boxed{7}\ \boxed{0}\ 5 \\ +\ 1\ 5\ 7\ \boxed{1} \\ \hline 9\ 8\ 4\ 8 \end{array}$$

11.
$$\begin{array}{r} 3\ 2\ \boxed{7}\ 7 \\ +\ \boxed{8}\ 5\ 2\ 6 \\ \hline 7\ \square\ 9\ \square \end{array}$$

12.
$$\begin{array}{r} \square\ 8\ 4 \\ +\ 3\ \square\ 5 \\ \hline 5\ 1\ \square \end{array}$$

13.
$$\begin{array}{r} 7\ 8\ 0\ \square \\ -\ \square\ 1\ \square\ 2 \\ \hline 2\ \square\ 2\ 5 \end{array}$$

14.
$$\begin{array}{r} \square\ \square\ 6 \\ -\ 6\ 9\ 4 \\ \hline 2\ 4\ \square \end{array}$$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

15. When Sally's family began their trip to New York the odometer in the car read 19,461 miles. When they got to New York the odometer read 23,001 miles. How many miles did Sally's family travel to get to New York?

16. Mr. Drake drove 18,121 miles last year. This year he drove 15,987 miles. How many more miles did Mr. Drake drive last year than this year?

Copy and complete each table. Estimate each sum or difference to the nearest multiple of one hundred. Find the exact answers.

1.	Estimate	Exact
170 + 190	?	?
680 − 310	?	?
380 + 430	?	?
880 + 110	?	?
530 − 290	?	?
750 − 270	?	?

2.	Estimate	Exact
570 + 320	?	?
220 − 80	?	?
368 − 268	?	?
359 + 247	?	?
849 − 267	?	?
466 + 275	?	?

How are the estimates and the exact answers alike?

Use each column below to construct a table. Estimate each sum or difference to the nearest multiple of one thousand. Find the exact answers.

3.	4.
4350 + 2870	2301 + 6978
1640 + 7120	1110 + 6660
8240 − 6970	8235 − 5295
3950 + 2220	4225 + 3780
5780 − 2145	6775 − 3186
4501 + 3610	6590 − 2440

How are the estimates and the exact answers alike?

Use each column below to construct a table. Estimate each sum or difference to the nearest multiple of ten thousand. Find the exact answer.

5.	6.
13,010 + 18,090	87,100 + 22,550
32,060 + 41,600	35,470 + 24,075
83,700 − 39,300	22,060 − 8000
78,690 − 31,810	36,610 − 26,460
68,400 + 31,900	26,930 + 36,800
65,750 + 17,280	74,215 − 45,450

How are the estimates and the exact answers alike?

Wh f thtssh

Copy and complete each sentence, writing >, <, or = in place of the ○.

1. 3108 − 1999 ○ 999 + 3109
2. 8475 + 1962 ○ 9801 − 1052
3. 7512 − 6623 ○ 2242 − 1253
4. 5198 + 2902 ○ 8001 − 199
5. 6001 − 4009 ○ 846 + 956
6. 3210 + 6543 ○ 9753 − 3120

Copy and complete each sentence, writing + or − in place of the △.

7. 1673 + 128 = 1736 △ 65
8. 4718 △ 3108 = 7201 △ 625
9. 3186 △ 1898 = 3397 △ 2109
10. 5519 △ 1595 = 5159 △ 1955
11. 6987 △ 1234 = 7219 △ 1466
12. 5961 △ 3161 = 5952 △ 3170

Copy and complete the addition table.

13.

+	128	285	697	3769
7653	?	?	?	?
7953	?	?	?	?
4953	?	?	?	?
4983	?	?	?	?
6983	?	?	?	?
6783	?	?	?	?

Copy and complete each equation.

14. 2961 − 2892 = 9852 − ?
15. 4094 + 1406 = 6500 − ?
16. 2163 + 4953 = ? − 3842
17. 5867 + 5978 = 6756 + ?
18. 7954 − 7594 = 7854 − ?
19. 12,957 + 11,671 = 25,000 − ?
20. 38,101 − 29,202 = ? + 7623
21. 45,812 + 33,998 = ? − 11,402
22. 62,000 − 28,195 = 27,416 + ?
23. 31,456 − 15,288 = 12,091 + ?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Gayle, Stewart, and Dick planned to meet in Yellowstone National Park. Gayle lives 1532 miles from Yellowstone National Park. Stewart lives 846 miles from the park. How much farther must Gayle travel than Stewart to get to the park?

2. Dick's home is 177 miles from Yellowstone. How much nearer to the park is Dick's home than Stewart's? How much nearer to the park is Dick's home than Gayle's?

3. Stewart guessed, as they drove through Kansas, that they could count 225 barns. His sister guessed that they could count 113 barns. At the end of the day they had counted 176 barns. Whose guess was closer?

4. When Gayle's family arrived in Denver, her father said that they had spent \$240.50. They had spent \$75.75 for motels, \$85.37 for food, \$22.98 for gifts, and \$22.45 for car repairs. The rest was spent for gasoline. How much was spent for gasoline?

5. A forest ranger told Dick that about 1400 black bears and 475 grizzly bears live in Wyoming. About how many more black bears than grizzly bears live in Wyoming?

6. The children learned that Yellowstone became a national park in 1872. For how many years has Yellowstone been a national park?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Gayle's father said that they would travel 4000 miles during their vacation. They drove 1532 miles from their home to Yellowstone. How many more miles did they travel after their visit to Yellowstone?

2. In June, 22,765 cars entered Yellowstone Park. In July, 23,147 cars entered. In August, 24,366 cars entered. How many cars entered Yellowstone during these three months?

3. Gayle spent $11.73 for lunches in Yellowstone. Dick spent $14.95 and Stewart spent $13.25. How much did their lunches cost?

4. Yellowstone Lake is 7731 feet above sea level. Eagle Peak is 11,360 feet above sea level. Eagle Peak is how many more feet above sea level than Yellowstone Lake?

5. In the spring, many birds fly to Yellowstone Park. The loons fly 2500 miles from Alaska. The redheaded ducks fly 2000 miles from Cuba. The cliff swallows fly 5600 miles from South America. How far do the loons, the ducks, and the swallows fly all together?

6. Each time Old Faithful erupts, it discharges about 11,900 gallons of water. A geyser near Old Faithful erupts 7800 gallons of water. A third geyser erupts 10,500 gallons of water. About how many gallons of water do the three geysers erupt in all?

7. The children saw three waterfalls. Upper Falls is 109 feet high. Lower Falls is 308 feet high. Gibbon Falls is 80 feet high. How many feet farther does the water fall at Lower Falls than at Upper Falls? than at Gibbon Falls?

REVIEW

Copy and complete each sequence.

1. 5099, ___?___, 5101
2. 1100, ___?___, 1098
3. 7000, ___?___, 6998
4. 3999, ___?___, 4001
5. 11,000, ___?___, 10,998
6. 14,099, ___?___, 14,101
7. 25,200, ___?___, 25,198
8. 30,999, ___?___, 31,001
9. 66,000, ___?___, 65,998
10. 109,999, ___?___, 110,001

Name the multiple of 1000 nearest to each given number.

11. 5248
12. 6907
13. 3499
14. 7351
15. 8132
16. 2603

Name the multiple of 10,000 nearest to each given number.

17. 22,649
18. 56,087
19. 45,910
20. 78,835
21. 11,777
22. 34,298

Read each story problem. Then decide which of the given equations could be used to solve the problem. List those equations.

23. The school nurse told Jack that he weighed 72 pounds. She said that last year he weighed 59 pounds. How many pounds did he gain?

24. Gary has read 59 pages for his report. He must read 72 pages. How many more pages must Gary read in order to complete his report?

25. Jack has 72 United States stamps and 59 Canadian stamps in his collection. How many stamps from these two countries does Jack have in his collection?

26. Mary had a piece of ribbon 72 inches long. Carol had a piece of ribbon 59 inches long. If the girls laid their ribbons end to end, how long would this piece of ribbon be?

$\boxed{\text{A}}$ $n+59=72$

$\boxed{\text{B}}$ $72-59=n$

$\boxed{\text{C}}$ $59+72=n$

$\boxed{\text{D}}$ $72-n=59$

$\boxed{\text{E}}$ $n-72=59$

$\boxed{\text{F}}$ $n=72+59$

$\boxed{\text{G}}$ $131-72=n$

Copy and complete each equation.

1. 170 + 237 = 362 + _?_

2. 298 + 640 = _?_ − 9

3. 640 + _?_ = 763 + 83

4. 253 + 291 = 349 + _?_

5. 668 + _?_ = 433 + 489

6. 397 + 373 = _?_ − 130

7. 244 + _?_ = 1001 − 412

8. _?_ − 389 = 402 − 211

9. 705 − 436 = _?_ − 687

10. 758 + _?_ = 239 + 673

Copy and complete each sentence, writing >, <, or = in place of the ⊕.
Then find the difference between the numbers compared.

11. 397 + 373 ⊕ 165 + 249

12. 701 − 298 ⊕ 667 − 178

13. 452 + 374 ⊕ 942 − 116

14. 355 − 246 ⊕ 600 − 415

15. 740 − 439 ⊕ 406 − 118

16. 472 + 379 ⊕ 464 + 387

17. 0 + 512 ⊕ 512 − 512

18. 244 + 568 ⊕ 356 + 154

19. 417 + 54 ⊕ 454 + 17

20. 306 + 18 ⊕ 324 − 18

Copy and solve each equation.

21. n = 4243 + 3726
_?_ = 4243 + 3726

22. 5734 − 1035 = a
5734 − 1035 = _?_

23. 75,462 + y = 83,471
75,462 + _?_ = 83,471

24. b = 6859 − 4347
_?_ = 6859 − 4347

25. x − 7086 = 8632
_?_ − 7086 = 8632

26. 46,784 − m = 32,909
46,784 − _?_ = 32,909

27. 8729 + 1195 = k
8729 + 1195 = _?_

28. y − 3498 = 9386
_?_ − 3498 = 9386

29. f − 88,968 = 93,072
_?_ − 88,968 = 93,072

MULTIPLICATION OF WHOLE NUMBERS

For each story problem, write an equation and solve it. Then write a sentence to answer the question.

1. Eight carloads of boys from Park School went to a basketball game. Each car held 5 boys. How many boys from Park School went to the game?

$8 \times 5 = b$
$8 \times 5 = \underline{\ ?\ }$

2. During the game, 7 of the boys ate 2 hot dogs each. How many hot dogs did these boys eat?

3. Each section of the gym has 9 rows. There are 7 seats in a row. How many seats are in each section?

4. The home team scored 8 points in each of the 4 quarters of the game. What was the final score for the home team?

Answer these questions.

5. In multiplication, what do we call the numbers that are multiplied? What is the result called?

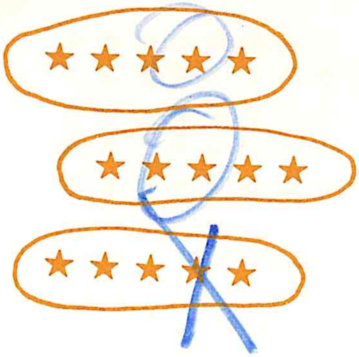
6. What are the factors in the equation $4 \times 3 = 12$? What is the product?

7. In the equation $9 \times 4 = 36$, what is the number 9? In the equation $3 \times 3 = 9$, what is the number 9?

Copy and complete the table.

Factors	Product	Equation
5, 7	35	$5 \times 7 = \underline{35}$
8, $\underline{\ ?\ }$	72	?
$\underline{\ ?\ }$, 6	36	?
9, 5	?	?
$\underline{\ ?\ }$, $\underline{\ ?\ }$	?	$4 \times 7 = \underline{\ ?\ }$
$\underline{\ ?\ }$, $\underline{\ ?\ }$	?	$3 \times 8 = \underline{\ ?\ }$
7, $\underline{\ ?\ }$	?	$7 \times \underline{\ ?\ } = 42$
$\underline{\ ?\ }$, 9	?	$\underline{\ ?\ } \times 9 = 18$

We can use sets to help us think about multiplication of whole numbers.

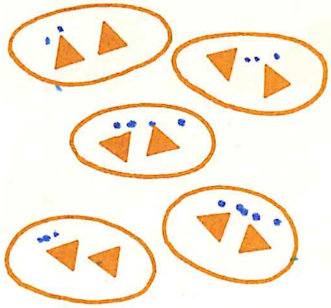


1. How many sets?

2. How many elements in each set?

3. What is the total number of elements?

4. $3 \times 5 = \underline{\ ?\ }$



5. How many sets?

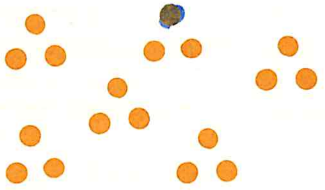
6. How many elements in each set?

7. What is the total number of elements?

8. $\underline{\ ?\ } \times \underline{\ ?\ } = \underline{\ ?\ }$

Write the multiplication equation for each picture.

9.



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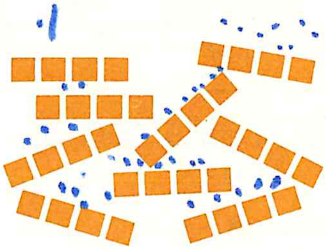

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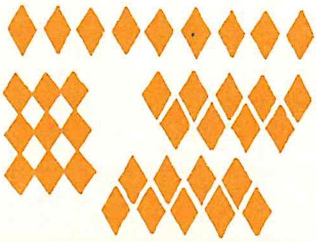

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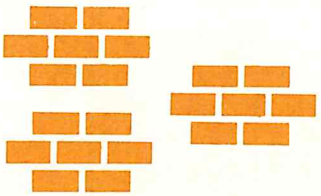
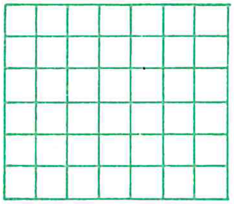
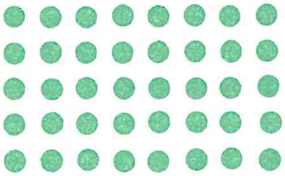


We can arrange the elements of a set in an array.

6 by 7 array of squares



5 by 8 array of dots

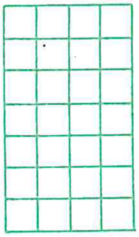


1. How many rows?
2. How many elements in each row?
3. What is the total number of elements?
4. Write the multiplication equation.

5. How many rows?
6. How many elements in each row?
7. What is the total number of elements?
8. Write the multiplication equation.

Write the multiplication equation for each array.

9.



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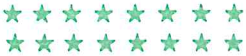

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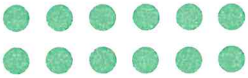
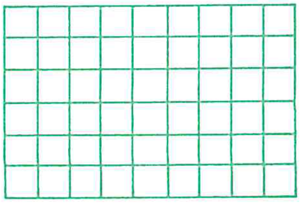


✓

12.



Copy and complete each sentence, writing >, <, or = in place of the ○.

	A	B	C	D
13.	2 × 8 ○ 2 × 9	2 × 6 ○ 4 × 3	3 × 8 ○ 5 × 6	8 × 1 ○ 8 + 1
14.	6 × 4 ○ 6 + 4	7 × 0 ○ 7 − 0	7 × 8 ○ 8 × 7	5 × 9 ○ 6 × 8
15.	9 × 3 ○ 3 × 9	4 × 7 ○ 3 × 8	9 × 2 ○ 9 − 2	9 − 0 ○ 9 × 0
16.	8 − 2 ○ 8 × 2	4 × 7 ○ 5 × 6	0 + 6 ○ 0 × 6	7 × 0 ○ 7 − 7

Find the sums.

1. $$\begin{array}{r} 10\\ 10\\ 10\\ 10\\ 10\\ +10\\ \hline 60 \end{array}$$

2. $$\begin{array}{r} 10\\ 10\\ 10\\ +10\\ \hline 30 \end{array}$$

3. $$\begin{array}{r} 10\\ 10\\ +10\\ \hline 350 \end{array}$$

4. $$\begin{array}{r} 10\\ 10\\ 10\\ 10\\ 10\\ 10\\ 10\\ +10\\ \hline \end{array}$$

5. $$\begin{array}{r} 10\\ 10\\ 10\\ 10\\ +10\\ \hline \end{array}$$

6. $$\begin{array}{r} 10\\ 10\\ 10\\ 10\\ 10\\ 10\\ +10\\ \hline \end{array}$$

7. $$\begin{array}{r} 3\\ 3\\ 3\\ 3\\ 3\\ 3\\ 3\\ 3\\ 3\\ +\ 3\\ \hline 30 \end{array}$$

8. $$\begin{array}{r} 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ +12\\ \hline 120 \end{array}$$

9. $$\begin{array}{r} 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ +56\\ \hline 50 \end{array}$$

10. $$\begin{array}{r} 79\\ 79\\ 79\\ 79\\ 79\\ 79\\ 79\\ 79\\ 79\\ +79\\ \hline 70 \end{array}$$

11. $$\begin{array}{r} 148\\ 148\\ 148\\ 148\\ 148\\ 148\\ 148\\ 148\\ 148\\ +148\\ \hline 149 \end{array}$$

12. $$\begin{array}{r} 396\\ 396\\ 396\\ 396\\ 396\\ 396\\ 396\\ 396\\ 396\\ +396\\ \hline \text{[illegible]} \end{array}$$

We can sometimes think of multiplication as repeated addition. For example, for problem 1 above, we can write the equation 6 × 10 = ?. For each repeated addition above, write a multiplication equation.

Find the products.

13. 3 × 10 = ?

14. 10 × 6 = ?

15. 12 × 10 = ?

16. 10 × 37 = ?

17. 56 × 10 = ?

18. 10 × 43 = ?

19. 148 × 10 = ?

20. 10 × 284 = ?

21. 465 × 10 = ?

22. 10 × 801 = ?

23. 563 × 10 = ?

24. 10 × 732 = ?

25. 10 × 7 = ?

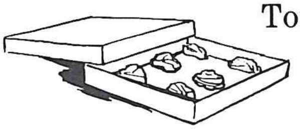
26. 10 × 70 = ?

27. 10 × 700 = ?

28. 9 × 10 = ?

29. 90 × 10 = ?

30. 900 × 10 = ?



Tom and Ellen each had a rock collection.

Tom kept his rocks in boxes. He had 8 boxes with 6 rocks in each box. Tom had $\underline{\ ?\ }$ × $\underline{\ ?\ }$ or $\underline{\ ?\ }$ rocks.

Ellen kept her rocks on shelves. She had 6 shelves with 8 rocks on each shelf. Ellen had $\underline{\ ?\ }$ × $\underline{\ ?\ }$ or $\underline{\ ?\ }$ rocks.

Who has more rocks, Tom or Ellen?

1. Tony had 9 bags of marbles with 7 marbles in each bag. He gave all of these marbles to Bill. Bill took 7 bags and put the same number of marbles in each. How many marbles did he put into each bag?

2. Mr. Joseph has 15 boxes of bolts. There are 12 bolts in each box. This is a total of 180 bolts. If Mr. Joseph had 12 boxes with 15 bolts in each box, how many bolts would he have?

Copy and complete each sentence, writing = or ≠ in place of the ○.

3. $3 \times 4 \bigcirc 4 \times 3$

4. $2 \times 9 \bigcirc 9 \times 5$

5. $6 \times 7 \bigcirc 7 \times 6$

6. $17 + 9 \bigcirc 9 + 17$

7. $17 - 9 \bigcirc 9 - 17$

8. $17 \times 9 \bigcirc 9 \times 17$

Copy and solve each equation.

9. $4 \times 8 = 8 \times \square$

10. $7 \times 5 = \square \times 7$

11. $\square \times 3 = 3 \times 15$

12. $26 \times \square = 9 \times 26$

13. $\square \times 4 = 4 \times \square$

14. $2 \times \square = \square \times 2$

15. Changing the order of two factors does not change the $\underline{\ ?\ }$.

16. If a and b are whole numbers, then
$a \times b = \underline{\ ?\ } \times \underline{\ ?\ }$. (Copy and complete this equation.)

Multiplication of whole numbers is commutative.

Copy and solve each equation.

1. $9 \times 1 = \boxed{2}$
2. $7 \times 1 = \boxed{7}$
3. $10 \times 1 = \boxed{2}$
4. $3 \times 1 = \boxed{2}$
5. $1 \times 2 = \boxed{4}$
6. $1 \times 8 = \boxed{16}$
7. $1 \times 6 = \boxed{32}$
8. $1 \times 4 = \boxed{8}$
9. What is the product of any number and one?
10. If n is a whole number, then $n \times 1 = 1 \times n = \underline{\ ?\ }$. (Copy and complete the equation.)

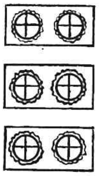
The number one is called the *identity element* for multiplication.

11. $1 \times 0 =$ [illegible]
12. $3 \times 0 =$ [illegible]
13. $5 \times 0 =$ [illegible]
14. $7 \times 0 = \boxed{5}$
15. $9 \times 0 = \boxed{8}$
16. $0 \times 2 = \boxed{4}$
17. $0 \times 4 = \boxed{12}$
18. $0 \times 6 = \boxed{3}2$
19. $0 \times 8 = \boxed{16}$
20. $0 \times 10 = \boxed{20}$
21. What is the product of any number and zero?
22. If n is a whole number, then $n \times 0 = 0 \times n = \underline{\ ?\ }$. (Copy and complete the equation.)

Copy and complete each sentence, writing +, −, or × in place of the △.

23. $8 \times 3 = 6 \triangle 4$
24. $70 \triangle 2 = 9 \times 8$
25. $3 \times 3 = 4 \triangle 5$
26. $160 + 14 = 170 \triangle 4$
27. $4 \triangle 8 = 42 - 10$
28. $7 + 7 + 7 + 7 = 4 \triangle 7$
29. $53 \triangle 10 = 500 + 30$
30. $10 \times 16 = 230 \triangle 70$
31. $400 + 160 + 13 = 500 \triangle 70 + 3$
32. $2 \times 9 = 21 \triangle 3$
33. $6 \triangle 7 = 7 \times 6$
34. $2 \times 9 = 9 \triangle 9$
35. $0 + 37 = 37 \triangle 0$
36. $59 \times 10 = 600 \triangle 10$
37. $72 \triangle 0 = 84 - 84$
38. $5 \times 5 = 25 \triangle 1$
39. $19 \triangle 10 = 10 \triangle 19$
40. $360 \triangle 4 = 4 \triangle 360$

Bill and Jane wanted to solve this story problem:



Mr. Davis put 2 pies into each of 3 boxes. Each pie had been cut into 4 pieces. How many pieces of pie were there in these 3 boxes?

Bill thought, "Mr. Davis had 3×2 or $\underline{\;?\;}$ pies. Each pie was cut into 4 pieces. There were $\underline{\;?\;} \times 4$ or $\underline{\;?\;}$ pieces all together."

Bill wrote: $(3 \times 2) \times 4 = r$

$\underline{\;?\;} \times 4 = \underline{\;?\;}$

Jane thought, "Mr. Davis had 3 boxes. In each box there were 2×4 or $\underline{\;?\;}$ pieces of pie. There were $3 \times \underline{\;?\;}$ or $\underline{\;?\;}$ pieces of pie all together."

Jane wrote: $3 \times (2 \times 4) = r$

$3 \times \underline{\;?\;} = \underline{\;?\;}$

Who was correct, Bill or Jane?

Copy and complete each equation.

1. $(3 \times 3) \times 2 = \underline{\;?\;} \times 2 = \underline{\;?\;}$

   $3 \times (3 \times 2) = 3 \times \underline{\;?\;} = \underline{\;?\;}$

2. $(1 \times 5) \times 6 = \underline{\;?\;} \times 6 = \underline{\;?\;}$

   $1 \times (5 \times 6) = 1 \times \underline{\;?\;} = \underline{\;?\;}$

3. $(5 \times 2) \times 4 = \underline{\;?\;} \times 4 = \underline{\;?\;}$

   $5 \times (2 \times 4) = 5 \times \underline{\;?\;} = \underline{\;?\;}$

4. $(3 \times 2) \times 5 = \underline{\;?\;} \times 5 = \underline{\;?\;}$

   $3 \times (2 \times 5) = 3 \times \underline{\;?\;} = \underline{\;?\;}$

5. $(9 \times 8) \times 0 = \underline{\;?\;} \times 0 = \underline{\;?\;}$

   $9 \times (8 \times 0) = 9 \times \underline{\;?\;} = \underline{\;?\;}$

6. $(10 \times 7) \times 1 = \underline{\;?\;} \times 1 = \underline{\;?\;}$

   $10 \times (7 \times 1) = 10 \times \underline{\;?\;} = \underline{\;?\;}$

---

7. Changing the way in which three factors are grouped does not change the $\underline{\;?\;}$.

8. If a, b, and c are whole numbers, then $(a \times b) \times c = \underline{\;?\;} \times (\underline{\;?\;} \times \underline{\;?\;})$

Multiplication of whole numbers is associative.

$5 \times 70 = n$

$5 \times 70 = 5 \times (7 \times 10)$ Why?
$= (5 \times 7) \times 10$ Why?
$= 35 \times 10$ Why?
$= 350$ Why?

Use the associative property of multiplication to find the products.

1. $7 \times 80 = 7 \times (8 \times 10)$
$= (7 \times 8) \times 10$
$= \square \times 10$
$= \underline{\ ?\ }$

2. $3 \times 50 = 3 \times (\underline{\ ?\ } \times \underline{\ ?\ })$
$= (3 \times \underline{\ ?\ }) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

3. $8 \times 40 = \underline{\ ?\ } \times (4 \times 10)$
$= (\underline{\ ?\ } \times 4) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

4. $5 \times 90 = 5 \times (\underline{\ ?\ } \times \underline{\ ?\ })$
$= (\underline{\ ?\ } \times \underline{\ ?\ }) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

5. $6 \times 20 = \underline{\ ?\ } \times (\underline{\ ?\ } \times 10)$
$= (\underline{\ ?\ } \times \underline{\ ?\ }) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

6. $4 \times 30 = \underline{\ ?\ } \times (\underline{\ ?\ } \times \underline{\ ?\ })$
$= (\underline{\ ?\ } \times \underline{\ ?\ }) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

Copy and solve each equation.

7. $2 \times 80 = z$

$\underline{2} \times \underline{80} = \underline{160}$

8. $9 \times 70 = p$

$\underline{\ ?\ } \times \underline{\ ?\ } = \underline{\ ?\ }$

9. $5 \times 30 = t$

10. $6 \times 40 = m$

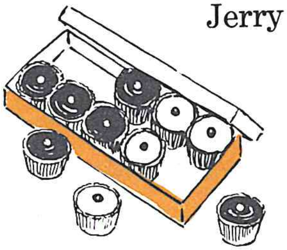
11. $3 \times 50 = s$

12. $4 \times 90 = q$

13. $5 \times 90 = d$

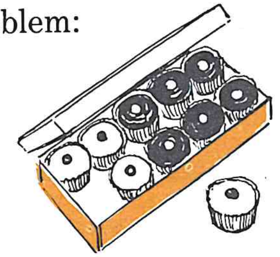
14. $7 \times 60 = w$

15. $8 \times 20 = y$



Jerry and Sarah wanted to solve this story problem:

Mrs. Krug packed 5 boxes of cupcakes to give to her friends. Each box contained 6 chocolate cupcakes and 4 vanilla cupcakes. How many cupcakes did Mrs. Krug pack for her friends?



Jerry thought, "In each box Mrs. Krug put 6 + 4 or $\underline{?}$ cupcakes. In all, she packed 5 × $\underline{?}$ or $\underline{?}$ cupcakes."

Jerry wrote: $5 \times (6 + 4) = c$

$5 \times \underline{?} = \underline{?}$

Sarah thought, "Mrs. Krug packed 5 × 6 or $\underline{?}$ chocolate cupcakes. She also packed 5 × 4 or $\underline{?}$ vanilla cupcakes. In all, she packed $\underline{?}$ + $\underline{?}$ cupcakes."

Sarah wrote: $(5 \times 6) + (5 \times 4) = c$

$\underline{?} + \underline{?} = \underline{?}$

Who was correct, Jerry or Sarah?

Copy and complete each equation.

1. $4 \times (7 + 3) = 4 \times \underline{10} = \underline{?}$

   $(4 \times 7) + (4 \times 3) = \underline{28} + \underline{12} = \underline{?}$

2. $6 \times (2 + 7) = 6 \times \underline{?} = \underline{?}$

   $(6 \times 2) + (6 \times 7) = \underline{?} + \underline{?} = \underline{?}$

3. $8 \times (4 + 5) = \underline{?} \times \underline{?} = \underline{?}$

   $(8 \times 4) + (8 \times 5) = \underline{?} + \underline{?} = \underline{?}$

4. $7 \times (3 + 1) = \underline{?} \times \underline{?} = \underline{?}$

   $(7 \times 3) + (7 \times 1) = \underline{?} + \underline{?} = \underline{?}$

5. $5 \times (5 + 2) = \underline{?} \times \underline{?} = \underline{?}$

   $(5 \times 5) + (5 \times 2) = \underline{?} + \underline{?} = \underline{?}$

6. $3 \times (4 + 2) = \underline{?} \times \underline{?} = \underline{?}$

   $(3 \times 4) + (3 \times 2) = \underline{?} + \underline{?} = \underline{?}$

7. $9 \times (3 + 3) = \underline{?} \times \underline{?} = \underline{?}$

   $(9 \times 3) + (9 \times 3) = \underline{?} + \underline{?} = \underline{?}$

8. $10 \times (6 + 3) = \underline{?} \times \underline{?} = \underline{?}$

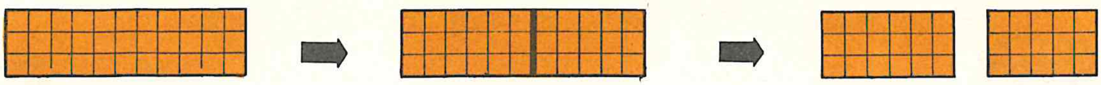
   $(10 \times 6) + (10 \times 3) = \underline{?} + \underline{?} = \underline{?}$

9. $7 \times (6 + 2) = \underline{?} \times \underline{?} = \underline{?}$

   $(7 \times 6) + (7 \times 2) = \underline{?} + \underline{?} = \underline{?}$

10. $8 \times (3 + 5) = \underline{?} \times \underline{?} = \underline{?}$

    $(8 \times 3) + (8 \times 5) = \underline{?} + \underline{?} = \underline{?}$



$3 \times 11 \quad = \quad 3 \times (6 + 5)$

$= (3 \times 6) + (3 \times 5)$

$= \underline{\ ?\ } + \underline{\ ?\ }$

$= \underline{\ ?\ }$

Copy and complete each equation.

1. $2 \times 11 = 2 \times (8 + 3)$

$= (2 \times \underline{\ ?\ }) + (2 \times \underline{\ ?\ })$

$= \underline{\ ?\ } + \underline{\ ?\ }$

$= \underline{\ ?\ }$

2. $4 \times 11 = 4 \times (10 + 1)$

$= (\underline{\ ?\ } \times \underline{\ ?\ }) + (\underline{\ ?\ } \times \underline{\ ?\ })$

$= \underline{\ ?\ } + \underline{\ ?\ }$

$= \underline{\ ?\ }$

3. $5 \times 11 = 5 \times (9 + \underline{\ ?\ })$

$= (\underline{\ ?\ } \times \underline{\ ?\ }) + (\underline{\ ?\ } \times \underline{\ ?\ })$

$= \underline{\ ?\ } + \underline{\ ?\ }$

$= \underline{\ ?\ }$

4. $6 \times 11 = \underline{\ ?\ } \times (7 + 4)$

$= (\underline{\ ?\ } \times \underline{\ ?\ }) + (\underline{\ ?\ } \times \underline{\ ?\ })$

$= \underline{\ ?\ } + \underline{\ ?\ }$

$= \underline{\ ?\ }$

5. $7 \times 11 = 7 \times (5 + \underline{\ ?\ })$

6. $8 \times 11 = 8 \times (\underline{\ ?\ } + 8)$

7. $9 \times 11 = 9 \times (\underline{\ ?\ } + 7)$

8. $10 \times 11 = 10 \times (\underline{\ ?\ } + \underline{\ ?\ })$

If a, b, and c are whole numbers, then

$$a \times (b + c) = (\underline{\ ?\ } \times b) + (\underline{\ ?\ } \times c).$$

For all whole numbers, *multiplication is distributive over addition.*

Helen and George wanted to solve this story problem:

At Marty's birthday party there were 5 boys and 4 girls. In a peanut hunt, each of these children found 10 peanuts. How many peanuts did they find?

Helen thought, "There were 5 + 4 or $\underline{?}$ children at the party. If each child found 10 peanuts, then they found $\underline{?}$ × 10 or $\underline{?}$ peanuts."

Helen wrote: $(5 + 4) \times 10 = p$

$\underline{?} \times 10 = \underline{?}$

George thought, "The 5 boys found 5 × 10 or $\underline{?}$ peanuts. The girls found 4 × 10 or $\underline{?}$ peanuts. They found $\underline{?}$ + $\underline{?}$ peanuts."

George wrote: $(5 \times 10) + (4 \times 10) = p$

$\underline{?} + \underline{?} = \underline{?}$

Who was correct, Helen or George?

Copy and complete each equation.

1. $(3 + 4) \times 5 = \underline{7} \times 5 = \underline{?}$

   $(3 \times 5) + (4 \times 5) = \underline{15} + \underline{20} = \underline{?}$

2. $(6 + 3) \times 6 = \underline{?} \times \underline{?} = \underline{?}$

   $(6 \times 6) + (3 \times 6) = \underline{?} + \underline{?} = \underline{?}$

3. $(5 + 5) \times 8 = \underline{?} \times \underline{?} = \underline{?}$

   $(5 \times 8) + (5 \times 8) = \underline{?} + \underline{?} = \underline{?}$

4. $(4 + 1) \times 9 = \underline{?} \times \underline{?} = \underline{?}$

   $(4 \times 9) + (1 \times 9) = \underline{?} + \underline{?} = \underline{?}$

5. $(4 + 2) \times 3 = \underline{?} \times \underline{?} = \underline{?}$

   $(4 \times 3) + (2 \times 3) = \underline{?} + \underline{?} = \underline{?}$

6. $(2 + 1) \times 9 = \underline{?} \times 9 = \underline{?}$

   $(2 \times 9) + (1 \times 9) = \underline{?} + \underline{?} = \underline{?}$

7. $(2 + 5) \times 8 = \underline{?} \times \underline{?} = \underline{?}$

   $(2 \times 8) + (5 \times 8) = \underline{?} + \underline{?} = \underline{?}$

8. $(1 + 3) \times 5 = \underline{?} \times \underline{?} = \underline{?}$

   $(1 \times 5) + (3 \times 5) = \underline{?} + \underline{?} = \underline{?}$

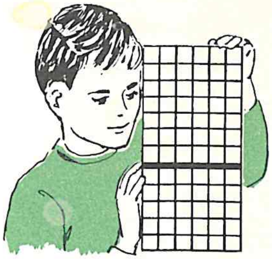
9. $(2 + 6) \times 7 = \underline{?} \times \underline{?} = \underline{?}$

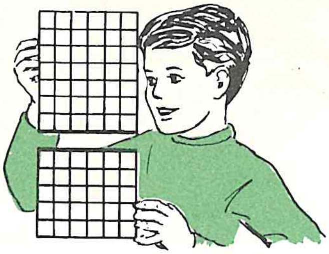
   $(2 \times 7) + (6 \times 7) = \underline{?} + \underline{?} = \underline{?}$

10. $(5 + 3) \times 4 = \underline{?} \times \underline{?} = \underline{?}$

    $(5 \times 4) + (3 \times 4) = \underline{?} + \underline{?} = \underline{?}$

2+24+4





$$\begin{aligned}12 \times 6 &= (7 + 5) \times 6\\ &= (7 \times 6) + (5 \times 6)\\ &= \underline{\ ?\ } + \underline{\ ?\ }\\ &= \underline{\ ?\ }\end{aligned}$$

Copy and complete each equation.

1. $$\begin{aligned}12 \times 3 &= (8 + 4) \times 3\\ &= (8 \times \underline{\ ?\ }) + (4 \times \underline{\ ?\ })\\ &= \underline{\ ?\ } + \underline{\ ?\ }\\ &= \underline{\ ?\ }\end{aligned}$$

2. $12 \times 5 = (6 + 6) \times \underline{\ ?\ }$

3. $12 \times 8 = (5 + \underline{\ ?\ }) \times 8$

4. $12 \times 10 = (2 + \underline{\ ?\ }) \times 10$

5. $$\begin{aligned}12 \times 4 &= (9 + 3) \times \underline{\ ?\ }\\ &= (\underline{\ ?\ } \times \underline{\ ?\ }) + (\underline{\ ?\ } \times \underline{\ ?\ })\\ &= \underline{\ ?\ } + \underline{\ ?\ }\\ &= \underline{\ ?\ }\end{aligned}$$

6. $12 \times 7 = (\underline{\ ?\ } + 2) \times 7$

7. $12 \times 9 = (3 + \underline{\ ?\ }) \times 9$

8. $12 \times 11 = (\underline{\ ?\ } + \underline{\ ?\ }) \times 11$

If a, b, and c are whole numbers, then

$$(b + c) \times a = (b \times \underline{\ ?\ }) + (c \times \underline{\ ?\ }).$$

For all whole numbers, *multiplication is* $\underline{\ ?\ }$ *over addition.*

Use the distributive property of multiplication over addition to find the products.

9. $$\begin{aligned}8 \times 14 &= 8 \times (10 + 4)\\ &= (8 \times \underline{\ ?\ }) + (8 \times \underline{\ ?\ })\\ &= \underline{\ ?\ } + \underline{\ ?\ }\\ &= \underline{\ ?\ }\end{aligned}$$

10. $6 \times 19 = 6 \times (\underline{\ ?\ } + \underline{\ ?\ })$

11. $4 \times 17 = 4 \times (\underline{\ ?\ } + \underline{\ ?\ })$

12. $8 \times 16 = 8 \times (\underline{\ ?\ } + \underline{\ ?\ })$

13. $7 \times 18 = 7 \times (\underline{\ ?\ } + \underline{\ ?\ })$

14. $6 \times 13 = 6 \times (\underline{\ ?\ } + \underline{\ ?\ })$

15. $$\begin{aligned}14 \times 8 &= (10 + 4) \times 8\\ &= (\underline{\ ?\ } \times 8) + (\underline{\ ?\ } \times 8)\\ &= \underline{\ ?\ } + \underline{\qquad}\\ &= \underline{\ ?\ }\end{aligned}$$

16. $18 \times 5 = (\underline{\ ?\ } + \underline{\ ?\ }) \times 5$

17. $13 \times 9 = (\underline{\ ?\ } + \underline{\ ?\ }) \times 9$

18. $19 \times 8 = (\underline{\ ?\ } + \underline{\ ?\ }) \times 8$

19. $17 \times 6 = (\underline{\ ?\ } + \underline{\ ?\ }) \times 6$

20. $15 \times 4 = (\underline{\ ?\ } + \underline{\ ?\ }) \times 4$

May and Dan wanted to solve this equation.

$$\boxed{9 \times 19 = x}$$

May thought, "Another name for 19 is (20 – __?__). I know that 9 × 20 is __?__ and that 9 × 1 is __?__. To get my answer I will subtract 9 × 1 from 9 × 20. My solution is __?__ – __?__ or __?__."

Dan thought, "Another name for 9 is (10 – 1). I know that 10 × 19 is __?__ and that 1 × 19 is __?__. To get my answer I will subtract 1 × 19 from 10 × 19. My solution is __?__ – __?__ or __?__."

Who is correct, May or Dan?

Copy and complete each equation.

1. $8 \times 19 = 8 \times (20 - \underline{?})$
$= (8 \times \underline{?}) - (8 \times \underline{?})$
$= \underline{?} - \underline{?}$
$= \underline{?}$

2. $8 \times 19 = (\underline{?} - 2) \times 19$
$= (\underline{?} \times 19) - (\underline{?} \times 19)$
$= \underline{?} - \underline{?}$
$= \underline{?}$

3. $9 \times 17 = 9 \times (20 - \underline{?})$
$= (9 \times \underline{?}) - (9 \times \underline{?})$
$= \underline{?} - \underline{?}$
$= \underline{?}$

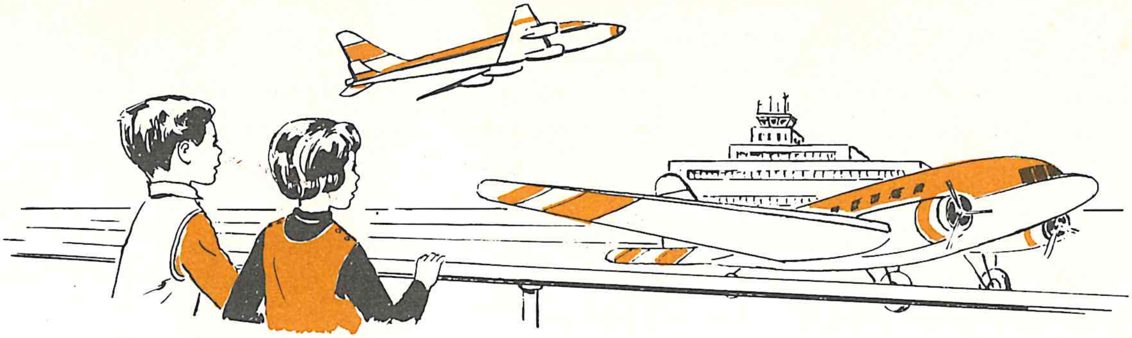
4. $9 \times 17 = (\underline{?} - 1) \times 17$
$= (\underline{?} \times 17) - (\underline{?} \times 17)$
$= \underline{?} - \underline{?}$
$= \underline{?}$

5. $7 \times 18 = 7 \times (\underline{?} - 2)$

6. $17 \times 8 = (\underline{?} - 3) \times 8$

7. $5 \times 19 = 5 \times (20 - \underline{?})$

8. $19 \times 3 = (20 - \underline{?}) \times 3$



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Six cars were used for a trip to the airport. There were 2 adults and 4 children in each car. How many people went on the trip?

2. Parking at the airport cost 15 cents for each car. How much did it cost for all 6 cars to park?

3. In the terminal, the children saw ticket desks for 8 airlines. There were 2 men and 3 women working at each desk. How many people worked at the ticket desks?

4. The children saw 8 baggage carts go by. Each cart held 16 bags. How many bags were on these carts?

5. Each of the 24 children and 12 adults paid 10 cents to go to the Observation Deck. How much did this cost in all?

6. In the largest hangar, 5 planes were parked in each of 3 rows. In another hangar, 4 planes were parked in each of 3 rows. How many planes were in these hangars?

7. The airport manager let the children sit in a jet airplane. Three children sat in each row of seats. How many rows of seats did the 24 children fill?

8. Three small planes landed on each of two landing strips. Each plane had 4 passengers. How many passengers were in these planes?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Eighteen boys belong to a club. The club has 2 times as many members now as it had last May. How many boys were in the club last May?

2. To earn money for a Halloween party, 4 of the boys raked leaves. Each boy earned the same amount of money. In all, they earned $8. How much money did each boy earn?

3. Six other boys earned money by washing windows. Each boy washed the same number of windows. Together, they washed 54 windows. How many windows did each boy wash?

4. Seventeen of the boys came to the Halloween party. Each boy ate 3 sandwiches. How many sandwiches did all the boys eat?

5. The boys bought 18 basketball uniforms with money left over from the party. Each uniform cost $8. How much money did the boys spend for uniforms?

Copy and complete the tables.

6.

Factor	Factor	Product	Equation
4	5	?	4×5= ?
?	7	42	?
?	?	?	3×4=12
9	?	72	?
9	9	?	?
?	8	48	?
7	9	?	?

7.

Factor	Factor	Product	Equation
6	5	?	?
?	7	49	?
7	4	?	?
8	7	?	?
?	8	40	?
5	9	?	?
8	?	64	?

DIVISION OF WHOLE NUMBERS

Sometimes a times sign is used in an equation with a *missing factor.*

$n \times 3 = 24$ $3 \times n = 24$

Sometimes a division sign is used in an equation with a missing factor.

$24 \div 3 = n$

In each equation, 3 is the known ?, n holds a place for a name of the ? factor, and 24 is the ?. The missing factor is ?.

Copy and complete each pair of equations.

1. $2 \times 8 = 16$
$16 \div 8 = 2$

2. $5 \times 7 = 35$
$35 \div 7 = 5$

3. $6 \times 3 = 18$
$18 \div 6 = 3$

4. $7 \times 3 = 21$
$21 \div 7 = 3$

5. $5 \times 4 = 20$
$20 \div 4 = 5$

6. $6 \times 1 = 6$
$6 \div 6 = 2$

7. $9 \times 2 = 18$
$18 \div 2 = 9$

8. $8 \times 5 = 40$
$40 \div 5 = 8$

9. $3 \times 9 = 27$
$27 \div 3 = 9$

10. $9 \times 8 = 72$
$72 \div 9 = 8$

11. $4 \times 3 = 12$
$12 \div 3 = 4$

12. $5 \times 9 = 45$
$45 \div 5 = 9$

13. $0 \times 1 = 0$
$0 \div 1 = 0$

14. $2 \times 7 = 14$
$14 \div 2 = 7$

15. $8 \times 6 = 48$
$48 \div 8 = 6$

Copy and complete each numbered sentence.

Division can be used to find a missing factor.

16. To find a missing factor, divide the ? by the ? factor.

The missing factor is often called the *quotient.*

$q \times 7 = 42$ $7 \times q = 42$ $42 \div 7 = q$

17. In each equation, q holds a place for a name of the ?.

18. In each equation, the quotient is the number ?.

Find the missing factors. Solve each equation as shown.

$n \times 4 = 8 \qquad 8 \div 4 = 2$

1. $6 \times r = 30$

2. $7 \times s = 0$

3. $p \times 1 = 7$

4. $z \times 9 = 54$

5. $2 \times y = 18$

6. $5 \times d = 40$

7. $t \times 3 = 15$

8. $w \times 8 = 32$

9. $9 \times a = 27$

Find the products. Solve each equation as shown.

$x \div 3 = 2 \qquad 2 \times 3 = 6$

10. $y \div 1 = 9$

11. $b \div 6 = 6$

12. $g \div 4 = 9$

13. $m \div 5 = 2$

14. $f \div 2 = 8$

15. $e \div 9 = 7$

16. $n \div 7 = 8$

17. $c \div 8 = 4$

18. $h \div 8 = 6$

Find the quotients.

	A	B	C	D
19.	$7\overline{)\,49}$	$3\overline{)\,27}$	$5\overline{)\,15}$	$1\overline{)\,7}$
20.	$9\overline{)\,45}$	$7\overline{)\,63}$	$1\overline{)\,9}$	$7\overline{)\,21}$
21.	$9\overline{)\,63}$	$7\overline{)\,7}$	$3\overline{)\,15}$	$5\overline{)\,35}$

22. If the product and known factor are both odd numbers, then the quotient is an __?__ number.

23.	$8\overline{)\,64}$	$2\overline{)\,16}$	$4\overline{)\,36}$	$6\overline{)\,36}$
24.	$4\overline{)\,16}$	$2\overline{)\,12}$	$6\overline{)\,30}$	$8\overline{)\,56}$
25.	$2\overline{)\,14}$	$8\overline{)\,24}$	$6\overline{)\,42}$	$8\overline{)\,72}$

26. If the product and known factor are both even numbers, is the quotient an odd or an even number?

There are many ways to express division of whole numbers.

$p \times 7 = 21$ $7 \times p = 21$ $21 \div 7 = p$ $\begin{array}{r} p \\ 7\overline{)21} \end{array}$ $\frac{21}{7} = p$

1. In each expression, what is the known factor? What is the product? What is the missing factor?

Find the missing factors.

2. $\frac{30}{6} = r$

3. $\frac{8}{8} = z$

4. $\frac{24}{3} = m$

5. $5 \times k = 45$

6. $\frac{35}{5} = d$

7. $\frac{72}{9} = n$

8. $7\overline{)63}$

9. $15 \div 3 = t$

10. $\frac{9}{1} = q$

11. $s \times 4 = 36$

12. $\frac{56}{8} = q$

13. $\frac{54}{6} = h$

Copy and complete each sentence, writing $=$ or $\neq$ in place of the ●.

14. $48 \div 6$ ● $24 \div 3$

15. $56 \div 7$ ● $54 \div 6$

16. $42 \div 6$ ● $42 \div 7$

17. $35 \div 7$ ● $25 \div 5$

18. $64 \div 8$ ● $63 \div 9$

Copy and complete each sentence, writing $>$, $<$, or $=$ in place of the ●.

19. $\frac{8}{4}$ ● $\frac{4}{2}$

20. $\frac{24}{8}$ ● $\frac{24}{3}$

21. $\frac{56}{8}$ ● $\frac{54}{9}$

22. $\frac{36}{6}$ ● $\frac{6}{1}$

23. $\frac{6}{3}$ ● $\frac{6}{2}$

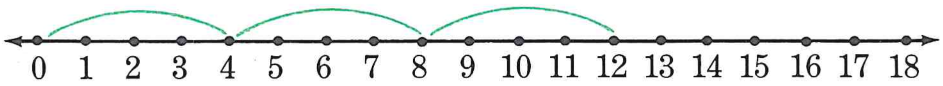
24. $\frac{12}{3}$ ● $\frac{12}{4}$

25. $\frac{63}{7}$ ● $\frac{27}{3}$

26. $\frac{72}{9}$ ● $\frac{81}{9}$

5

The number line can be used to find both products and quotients.



To find the product 3 × 4, start at 0 and take 3 jumps of 4 to the right.

1. Where do you land?

2. 3 × 4 = __?__

To find the quotient 12 ÷ 4, start at 12 and take jumps of 4 until 0 is reached.

3. How many jumps does this take?

4. 12 ÷ 4 = __?__

Repeated addition can be used to find the product of two numbers.

$$3 \times 8 = n$$
$$3 \times 8 = 8 + 8 + 8$$

5. What is the sum of 3 eights?

6. 3 × 8 = __?__

Repeated subtraction can be used to find the quotient of the two numbers.

$$n \times 8 = 24$$
$$24 \div 8 = n$$

$$\begin{array}{r} 24 \\ -\ 8 \\ \hline 16 \\ -\ 8 \\ \hline 8 \\ -\ 8 \\ \hline 0 \end{array}$$

7. Starting with 24, how many times was eight subtracted?

8. 24 ÷ 8 = __?__

Use repeated subtraction to find each quotient. Copy and complete each equation.

9. 18 ÷ 6 = __?__

$$\begin{array}{r} 18 \\ -\ 6 \\ \hline 12 \\ -\ 6 \\ \hline 6 \\ -\ 6 \\ \hline 0 \end{array}$$

10. 24 ÷ 12 = __?__

11. 30 ÷ 10 = __?__

12. __?__ × 9 = 27

13. __?__ × 11 = 44

14. 36 ÷ 9 = __?__

15. 10 × __?__ = 50

Vickie and Lynn collect pictures of animals and flowers. Vickie decided to paste her animal pictures in a scrapbook. On each of 8 pages she pasted 6 pictures.

1. Vickie has __?__ × __?__ or __?__ animal pictures.

Lynn pasted her animal pictures in a scrapbook too. On each of 6 pages she pasted 8 pictures.

2. Lynn has __?__ × __?__ or __?__ animal pictures.

Vickie and Lynn know that changing the order of the factors does not change the product of two whole numbers.

$$8 \times 6 = 6 \times 8$$

3. They know that multiplication is __?__.

When Vickie sorted her 18 flower pictures, she decided to put 6 pictures on each page.

4. She filled __?__ ÷ __?__ or __?__ pages in her scrapbook.

Lynn had 6 flower pictures. She giggled as she told Vickie that she would put 18 pictures on each page. She knew that there is no whole-number solution for $6 \div 18 = m$.

The girls decided that the order of the product and the known factor does change the quotient of two whole numbers.

$$18 \div 6 \neq 6 \div 18$$

Division of whole numbers is not commutative.

Charles told Bill that he could group three numbers in two different ways when multiplying and still get the same product.

5. (3 × 4) × 5 = [redacted] × 5 = __?__
6. 3 × (4 × 5) = 3 × [redacted] = __?__

Bill wondered if he could group three numbers in two different ways when dividing and still get the same quotient.

7. (16 ÷ 4) ÷ 2 = [redacted] ÷ 2 = __?__
8. 16 ÷ (4 ÷ 2) = 16 ÷ [redacted] = __?__

9. Multiplication of whole numbers is __?__.

10. __?__ of whole numbers is not associative.

Copy and complete each pair of equations and each numbered sentence.

1. $\square \times 1 = 5$

$5 \div 1 = \square$

2. $\square \times 1 = 9$

$9 \div 1 = \square$

3. $\square \times 1 = 17$

$17 \div 1 = \square$

4. $\square \times 1 = 0$

$0 \div 1 = \square$

5. If n is a whole number, then
$n \times 1 = \underline{\ ?\ }$.

6. If n is a whole number, then
$n \div 1 = \underline{\ ?\ }$.

7. $\square \times 8 = 8$

$8 \div 8 = \square$

8. $\square \times 19 = 19$

$19 \div 19 = \square$

9. $\square \times 47 = 47$

$47 \div 47 = \square$

10. $\square \times 827 = 827$

$827 \div 827 = \square$

11. If n is a whole number, then
$1 \times n = \underline{\ ?\ }$.

12. If n is a whole number, then
$n \div n = \underline{\ ?\ }$.

13.

$\square \times 7 = 0$

$0 \div 7 = \square$

14.

$\square \times 12 = 0$

$0 \div 12 = \square$

15.

$\square \times 17 = 0$

$0 \div 17 = \square$

16.

$\square \times 437 = 0$

$0 \div 437 = \square$

---

17. If n is a whole number, then $0 \times n = \square$.

18. If n is a counting number, then $0 \div n = \square$.

Which numbers make each sentence true?

0 1 2 3 4 5 6 7 8

19. $n \times 0 = 0$

20. What other whole numbers will make $n \times 0 = 0$ a true statement?

0 1 2 3 4 5 6 7 8

21. $n \times 0 = 5$

22. Is there any whole number that will make $n \times 0 = 5$ a true statement?

Copy and complete each equation.

1. $(8+4) \div 4 = \underline{\ ?\ } \div 4 = \square$

$(8 \div 4)+(4 \div 4) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

2. $(12+6) \div 3 = \underline{\ ?\ } \div 3 = \square$

$(12 \div 3)+(6 \div 3) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

3. $(36+12) \div 6 = \underline{\ ?\ } \div 6 = \square$

$(36 \div 6)+(12 \div 6) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

4. $(24+6) \div 6 = \underline{\ ?\ } \div 6 = \square$

$(24 \div 6)+(6 \div 6) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

5. $(20+4) \div 4 = \underline{\ ?\ } \div 4 = \square$

$(20 \div 4)+(4 \div 4) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

6. $12 \div (2+2) = 12 \div \underline{\ ?\ 4\ } = \boxed{3}$

$(12 \div 2)+(12 \div 2) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

7. $18 \div (2+1) = 18 \div \underline{\ ?\ } = \square$

$(18 \div 2)+(18 \div 1) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

8. $48 \div (4+2) = 48 \div \underline{\ ?\ } = \square$

$(48 \div 4)+(48 \div 2) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

9. $30 \div (5+1) = 30 \div \underline{\ ?\ } = \square$

$(30 \div 5)+(30 \div 1) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

10. $24 \div (3+1) = 24 \div \underline{\ ?\ } = \square$

$(24 \div 3)+(24 \div 1) = \underline{\ ?\ } + \underline{\ ?\ } = \square$

Copy and complete each sentence, writing = or ≠ in place of the ○.

11. $(16+8) \div 8$ ○ $(16 \div 8)+(8 \div 8)$

12. $(30+6) \div 6$ ● $(30 \div 6)+(6 \div 6)$

13. $(15+5) \div 5$ ● $(15 \div 5)+(5 \div 5)$

14. $(24+12) \div 6$ ○ $(24 \div 6)+(12 \div 6)$

15. $24 \div (4+4)$ ○ $(24 \div 4)+(24 \div 4)$

16. $18 \div (3+6)$ ○ $(18 \div 3)+(18 \div 6)$

17. $20 \div (4+1)$ ○ $(20 \div 4)+(20 \div 1)$

18. $36 \div (3+3)$ ○ $(36 \div 3)+(36 \div 3)$

Is division distributive over addition?

Copy and complete each equation.

1. $(20-8)\div 4=\underline{\ ?\ }\div 4=\square$

   $(20\div 4)-(8\div 4)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

2. $(24-6)\div 3=\underline{\ ?\ }\div 3=\square$

   $(24\div 3)-(6\div 3)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

3. $(36-12)\div 4=\underline{\ ?\ }\div 4=\square$

   $(36\div 4)-(12\div 4)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

4. $(60-12)\div 6=\underline{\ ?\ }\div 6=\square$

   $(60\div 6)-(12\div 6)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

5. $(45-15)\div 5=\underline{\ ?\ }\div 5=\square$

   $(45\div 5)-(15\div 5)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

6. $12\div(6-2)=12\div\underline{\ ?\ }=\square$

   $(12\div 6)-(12\div 2)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

7. $18\div(9-6)=18\div\underline{\ ?\ }=\square$

   $(18\div 9)-(18\div 6)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

8. $24\div(8-4)=24\div\underline{\ ?\ }=\square$

   $(24\div 8)-(24\div 4)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

9. $48\div(8-2)=48\div\underline{\ ?\ }=\square$

   $(48\div 8)-(48\div 2)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

10. $30\div(10-5)=30\div\underline{\ ?\ }=\square$

    $(30\div 10)-(30\div 5)=\underline{\ ?\ }-\underline{\ ?\ }=\square$

Copy and complete each sentence, writing $=$ or $\neq$ in place of the $\bigcirc$.

11. $(21-6)\div 3\bigcirc(21\div 3)-(6\div 3)$

12. $(30-12)\div 6\bigcirc(30\div 6)-(12\div 6)$

13. $(49-35)\div 7\bigcirc(49\div 7)-(35\div 7)$

14. $(40-5)\div 5\bigcirc(40\div 5)-(5\div 5)$

15. $16\div(4-2)\bigcirc(16\div 4)-(16\div 2)$

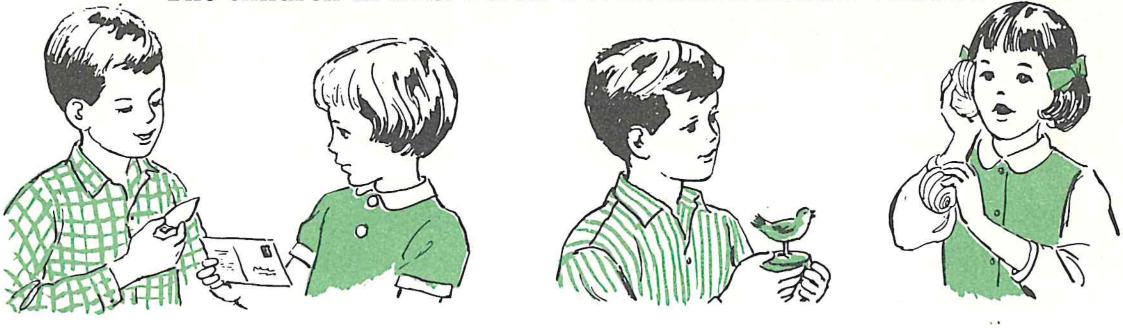
16. $12\div(6-3)\bigcirc(12\div 6)-(12\div 3)$

17. $24\div(6-3)\bigcirc(24\div 6)-(24\div 3)$

18. $36\div(18-12)\bigcirc(36\div 18)-(36\div 12)$

Is division distributive over subtraction?

The children in Mrs. Porter's room had a Science Exhibit.



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. David brought several cases with 9 arrowheads in each case. He brought 36 arrowheads in all. How many cases did David bring?
2. Louise displayed the same number of post cards from each of 9 countries. She displayed 45 post cards in all. How many did she display from each country?
3. Marla brought 72 seashells arranged on cards. There were 8 shells on each card. How many cards did Marla bring?
4. Some of the boys brought 48 science books for the exhibit. If each of the boys brought 6 books, how many boys brought books?
5. David brought 24 moths and 30 butterflies in display cases. There were 6 insects in each case. How many cases did he bring?
6. Jenny brought 48 packs of seeds, but before the exhibit she took 16 packs home. Jenny arranged 8 packs of seeds on each of several trays. How many trays did she fill?
7. Danny brought his collection of 20 bird models. He placed the same number of birds on each of 4 shelves. How many birds did he put on each shelf?
8. Nancy, Susan, Jim, Dave, and Bill each made the same number of posters for the Science Exhibit. In all, they made 15 posters. How many posters did each of these children make?

Read each story problem. Then list the equations that could be used to solve the problem.

1. Larry was playing darts. He scored 9 points with each of his 8 darts. How many points did Larry score in all?
2. Ted had a score of 72 after throwing 9 darts. All of his darts landed on the same numeral on the target. How many points did Ted score with each dart?
3. Jeff scored 8 points with each of his darts. His total score was 72. How many darts did Jeff throw?
4. Each of 6 girls brought the same number of hot dogs for the Girls Club cookout. They brought 48 hot dogs in all. How many hot dogs did each girl bring?
5. Several girls gathered wood for the fire. Each girl found 8 pieces of wood. In all, they found 48 pieces of wood. How many girls gathered wood for the fire?
6. Karen counted 8 cupcakes in each of 6 boxes. If the girls ate all of these cupcakes, how many did they eat?

$\boxed{A}$ $72 \div 8 = n$

$\boxed{B}$ $8 \times 9 = n$

$\boxed{C}$ $n = 72 \div 9$

$\boxed{D}$ $8 \times n = 72$

$\boxed{E}$ $9 \times n = 72$

$\boxed{F}$ $n = 6 \times 8$

$\boxed{G}$ $6 \times n = 48$

$\boxed{H}$ $48 \div 6 = n$

$\boxed{I}$ $48 = n \times 8$

$\boxed{J}$ $48 \div 8 = n$

Copy and complete each sentence, writing $+$, $-$, $\times$, or $\div$ in place of the $\triangle$ and $\triangledown$.

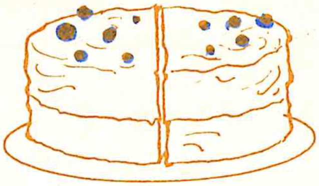
7. $49 - 41 = 56 \triangle 7$
8. $75 \triangle 35 = 8 \triangledown 5$
9. $148 - 121 = 3 \triangle 9$
10. $81 \div 9 = 12 \triangle 3$
11. $5 \triangle 59 = 8 \times 8$
12. $514 + 22 = 425 \triangle 111$
13. $72 \triangle 9 = 48 \div 6$
14. $180 + 209 = 499 \triangle 110$
15. $6 \triangle 6 = 12 \times 3$
16. $9 \triangle 7 = 4 \triangledown 4$
17. $27 - 12 = 15 \triangle 1$
18. $114 \triangle 26 = 67 \triangledown 21$

FRACTIONAL NUMBERS: SETS AND REGIONS

Mrs. Trent's class had a bake sale.

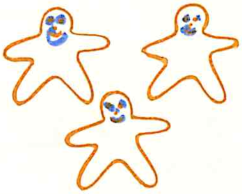
1. Mrs. Trent cut a large cake into two pieces of the same size. She sold one of these pieces for 50 cents. What part of the cake did she sell for 50 cents?

   one-half　　one-third　　one-sixth



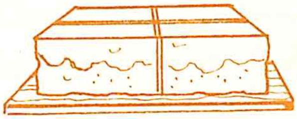
2. Betty Jane saw three big cookies on a plate. She bought one of them. What part of the whole group of cookies did she buy?

   one-half　　one-third　　one-sixth



3. Kelly cut a cake into four pieces of the same size. She sold one of these pieces. What part of the whole cake did Kelly sell?

   one-half　　one-third　　one-fourth

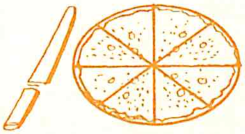


4. Arthur saw a cherry pie that was cut into six pieces of the same size. He bought one of these pieces. What part of the whole cherry pie did Arthur buy?

   one-third　　one-fourth　　one-sixth

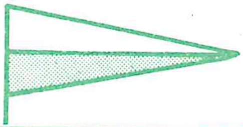
5. Mrs. Evans bought a large pizza. She cut it into eight pieces of the same size and gave one piece to Kevin. What part of the whole pizza did Kevin have?

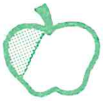
   one-eighth　　one-sixth　　one-fourth

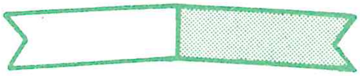


1. In which pictures are the correct parts shaded?

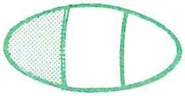
one-half

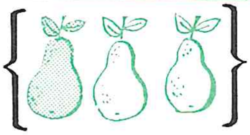
A 

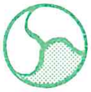
B 

C 

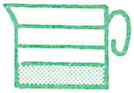
one-third

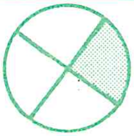
D 

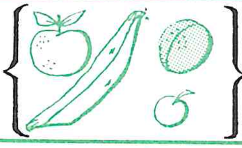
E 

F 

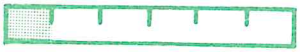
one-fourth

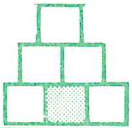
G 

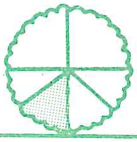
H 

I 

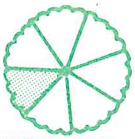
one-sixth

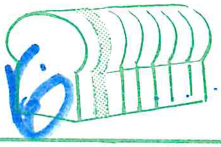
J 

K 

L 

one-eighth

M 

N 

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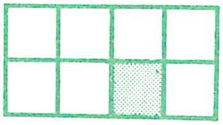
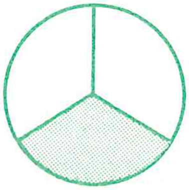
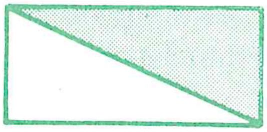
O 

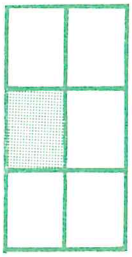
The fraction for one-half is "$\frac{1}{2}$."

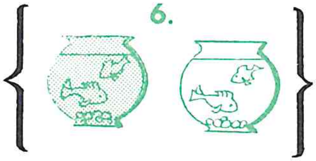
2. What is the fraction for one-third? For one-fourth? For one-sixth? For one-eighth?

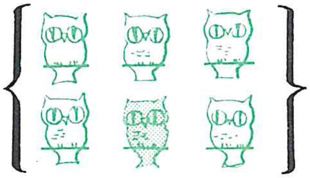
Write the fraction that tells what part of each region or set is shaded.

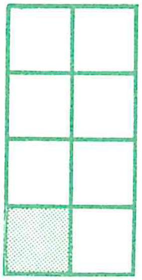
3. 

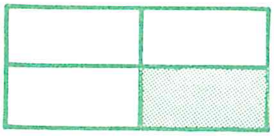
4. 

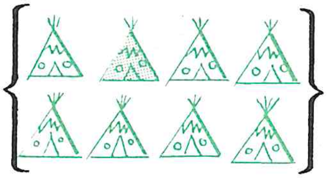
5. 

6. 

7. 

8. 

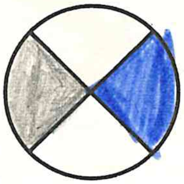
9. 

10. 

Copy each region or set and shade the correct part.

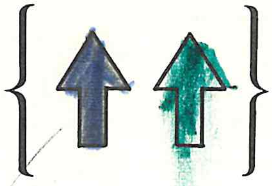
A

$\frac{1}{4}$



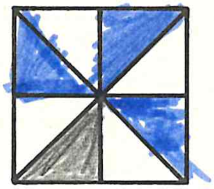
B

$\frac{1}{2}$



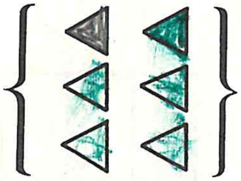
C

$\frac{1}{8}$



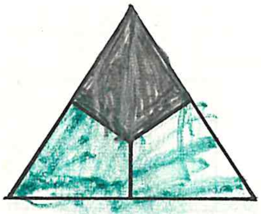
D

$\frac{1}{6}$



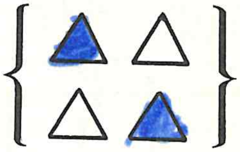
E

$\frac{1}{3}$



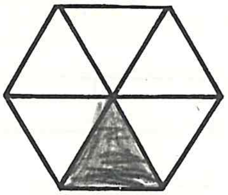
F

$\frac{1}{4}$



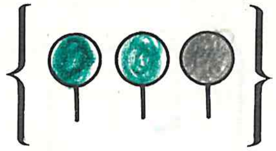
G

$\frac{1}{6}$



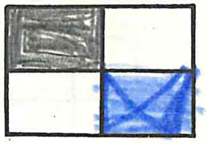
H

$\frac{1}{3}$



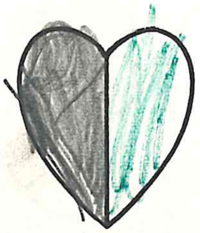
I

$\frac{1}{4}$



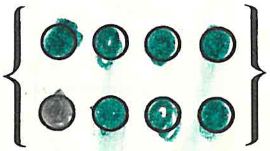
J

$\frac{1}{2}$



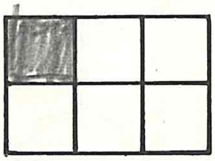
K

$\frac{1}{8}$

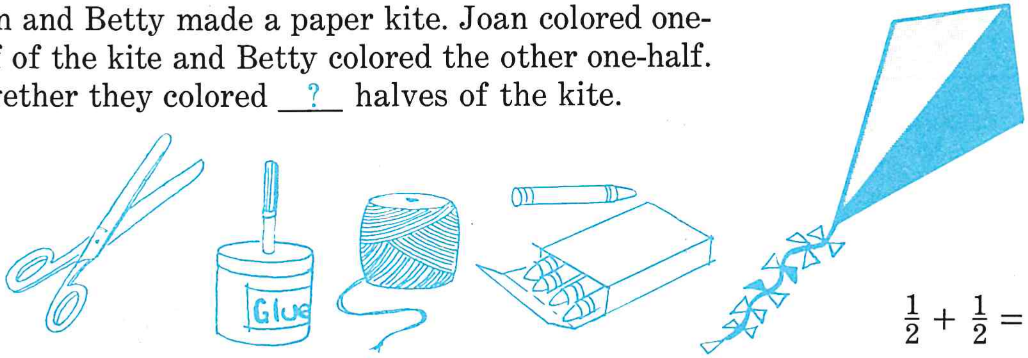


L

$\frac{1}{6}$



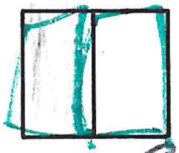
Joan and Betty made a paper kite. Joan colored one-half of the kite and Betty colored the other one-half. Together they colored ___?___ halves of the kite.



$\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$

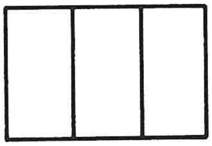
Copy and complete each equation.

1. $\frac{1}{2}$ and $\frac{1}{2}$



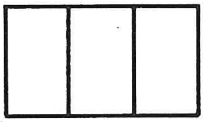
$\frac{1}{2} + \frac{1}{2} = \underline{\frac{2}{2}}$

2. $\frac{1}{3}$ and $\frac{1}{3}$



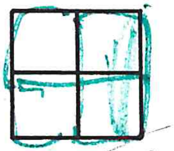
$\frac{1}{3} + \frac{1}{3} = \underline{\frac{2}{3}}$

3. $\frac{2}{3}$ and $\frac{1}{3}$



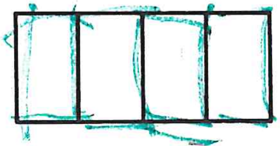
$\frac{2}{3} + \frac{1}{3} = \underline{\frac{3}{3}?}$

4. $\frac{1}{4}$ and $\frac{1}{4}$



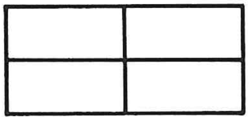
$\frac{1}{4} + \frac{1}{4} = \underline{\frac{2}{4}}$

5. $\frac{2}{4}$ and $\frac{1}{4}$



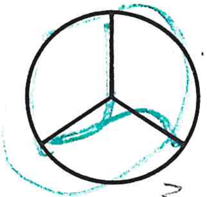
$\frac{2}{4} + \frac{1}{4} = \underline{\frac{3}{4}?}$

6. $\frac{3}{4}$ and $\frac{1}{4}$



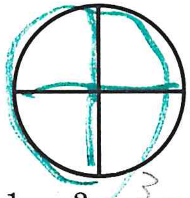
$\frac{3}{4} + \frac{1}{4} = \underline{\frac{4}{4}?}$

7. $\frac{1}{3}$ and $\frac{2}{3}$



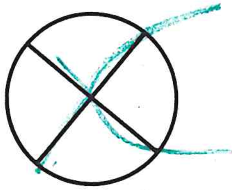
$\frac{1}{3} + \frac{2}{3} = \underline{\frac{3}{3}?}$

8. $\frac{1}{4}$ and $\frac{2}{4}$



$\frac{1}{4} + \frac{2}{4} = \underline{\frac{3}{4}?}$

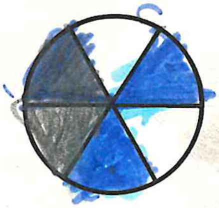
9. $\frac{1}{4}$ and $\frac{3}{4}$



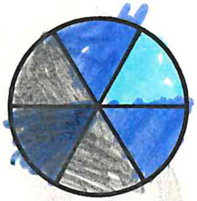
$\frac{1}{4} + \frac{3}{4} = \underline{\frac{4}{4}?}$

Copy and complete each equation. 4180

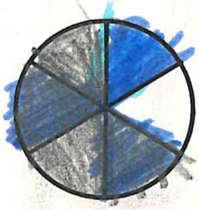
1. $\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$



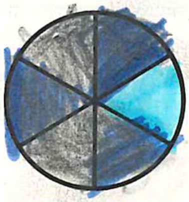
2. $\frac{2}{6} + \frac{1}{6} = \frac{3}{6}$



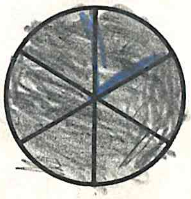
3. $\frac{3}{6} + \frac{1}{6} = \frac{4}{6}$



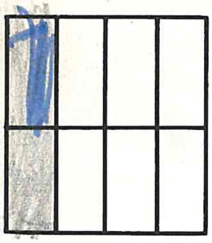
4. $\frac{4}{6} + \frac{1}{6} = \frac{5}{6}$



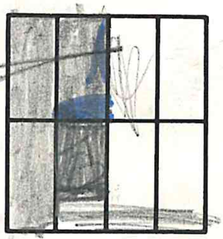
5. $\frac{5}{6} + \frac{1}{6} = \frac{6}{6}$



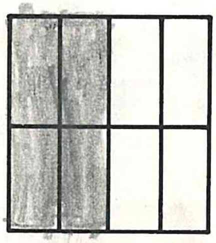
6. $\frac{1}{8} + \frac{1}{8} = \frac{2}{8}$



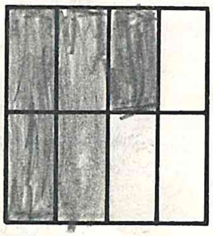
7. $\frac{2}{8} + \frac{1}{8} = \frac{3}{8}$



8. $\frac{3}{8} + \frac{1}{8} =$ 4



9. $\frac{4}{8} + \frac{1}{8} = \frac{5}{8}$



10. $\frac{5}{8} + \frac{1}{8} = \frac{6}{8}$

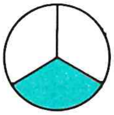
$\frac{6}{8} + \frac{1}{8} = \frac{7}{8}$

$\frac{7}{8} + \frac{1}{8} = \frac{8}{8}$

48

Write the correct fractions.

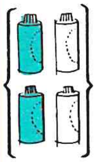
1.



$\frac{1}{3}$ shaded

$\frac{2}{3}$ not shaded

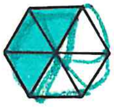
2.



? shaded

? not shaded

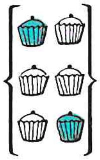
3.



? shaded

? not shaded

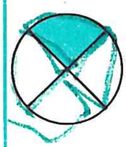
4.



? shaded

? not shaded

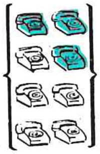
5.



? shaded

? not shaded

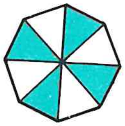
6.



? shaded

? not shaded

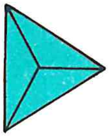
7.



? shaded

? not shaded

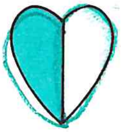
8.



? shaded

? not shaded

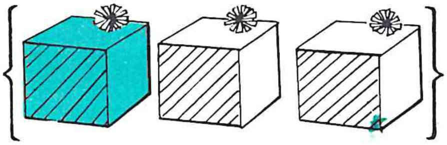
9.



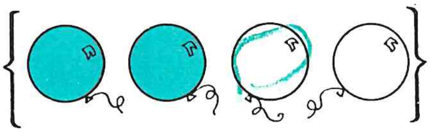
? shaded

? not shaded

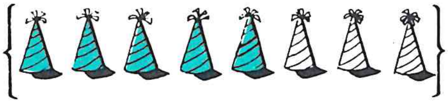
Find the sums.



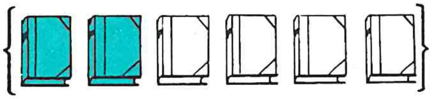
10. $\frac{1}{3} + \frac{2}{3} =$?



11. $\frac{2}{4} + \frac{2}{4} =$?

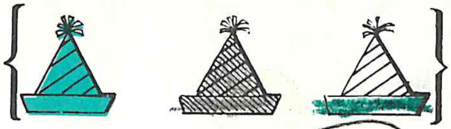


12. $\frac{5}{8} + \frac{3}{8} =$?

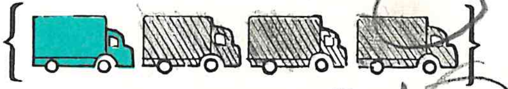


13. $\frac{2}{6} + \frac{4}{6} =$?

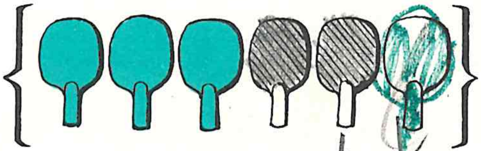
Copy and complete each equation.



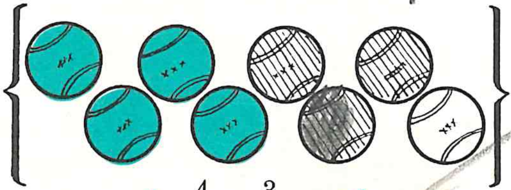
1. $\frac{1}{3} + \frac{1}{3} = \underline{\ ?\ }$



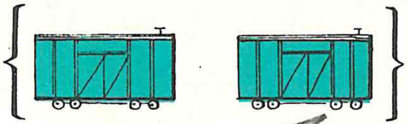
2. $\frac{1}{4} + \frac{3}{4} = \underline{\ ?\ }$



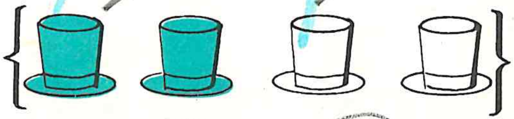
3. $\frac{3}{6} + \frac{2}{6} = \underline{\ ?\ }$



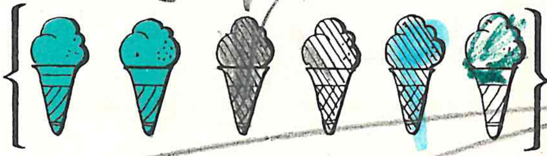
4. $\frac{4}{8} + \frac{3}{8} = \underline{\ ?\ }$



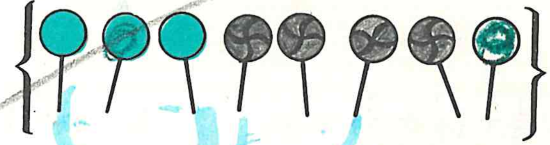
5. $\frac{2}{2} + \frac{0}{2} = \underline{\ ?\ }$



6. $\frac{2}{4} + \frac{0}{4} = \underline{\ ?\ }$



7. $\frac{2}{6} + \frac{3}{6} = \underline{\ ?\ }$



8. $\frac{3}{8} + \frac{4}{8} = \underline{\ ?\ }$

9. $\frac{1}{2} + \frac{1}{2} = \underline{\ ?\ }$

10. $\frac{2}{3} + \frac{1}{3} = \underline{\ ?\ }$

11. $\frac{0}{4} + \frac{1}{4} = \underline{\ ?\ }$

12. $\frac{3}{8} + \frac{3}{8} = \underline{\ ?\ }$

13. $\frac{2}{6} + \frac{3}{6} = \underline{\ ?\ }$

14. $\frac{4}{6} + \frac{0}{6} = \underline{\ ?\ }$

15. $\frac{5}{8} + \frac{3}{8} = \underline{\ ?\ }$

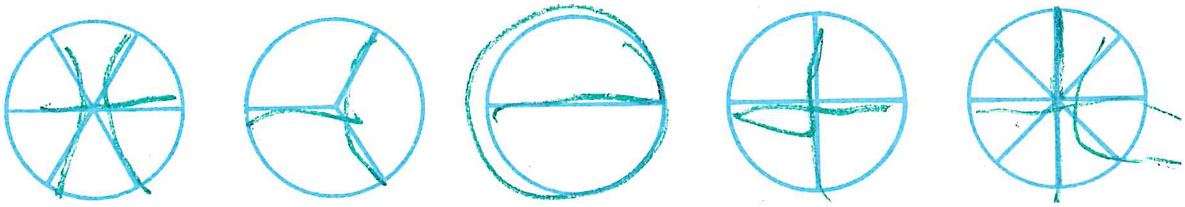
16. $\frac{3}{6} + \frac{3}{6} = \underline{\ ?\ }$

17. $\frac{0}{8} + \frac{5}{8} = \underline{\ ?\ }$

18. $\frac{5}{8} + \frac{2}{8} = \underline{\ ?\ }$

19. $\frac{4}{6} + \frac{2}{6} = \underline{\ ?\ }$

20. $\frac{2}{3} + \frac{0}{3} = \underline{\ ?\ }$



Copy and complete each equation. Looking at the regions above may help you.

1. $\frac{2}{6} + \frac{2}{6} =$? $\frac{4}{6}$

2. $\frac{4}{6} + \frac{1}{6} =$? $\frac{5}{6}$

3. $\frac{1}{6} + \frac{4}{6} =$? $\frac{5}{6}$

4. $\left(\frac{1}{6} + \frac{2}{6}\right) + \frac{3}{6} =$? $\frac{6}{6}$

5. $\frac{1}{6} + \left(\frac{2}{6} + \frac{3}{6}\right) =$? $\frac{9}{6}$

6. $\frac{1}{3} + \frac{2}{3} =$?

7. $\frac{2}{3} + \frac{1}{3} =$?

8. $\frac{1}{2} + \frac{1}{2} =$?

9. $\frac{1}{4} + \frac{3}{4} =$?

10. $\frac{3}{4} + \frac{1}{4} =$?

11. $\frac{2}{8} + \frac{2}{8} =$?

12. $\frac{5}{8} + \frac{2}{8} =$?

13. $\frac{2}{8} + \frac{5}{8} =$?

14. $\left(\frac{3}{8} + \frac{3}{8}\right) + \frac{1}{8} =$?

15. $\frac{3}{8} + \left(\frac{3}{8} + \frac{1}{8}\right) =$?

Copy and complete each addition chart.

16.

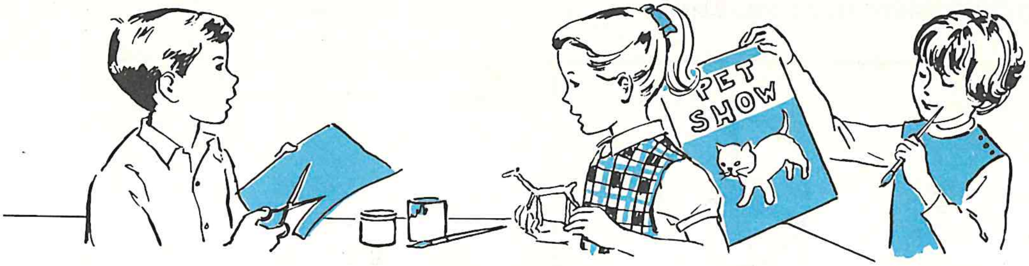
$\frac{1}{4}$	$\frac{2}{4}$	? $\frac{3}{4}$
$\frac{0}{4}$	$\frac{1}{4}$	? $\frac{1}{4}$
? $\frac{1}{4}$	? $\frac{3}{4}$	? $\frac{4}{4}$

17.

$\frac{0}{6}$	$\frac{1}{6}$	? $\frac{1}{6}$
$\frac{2}{6}$	$\frac{3}{6}$	? $\frac{5}{6}$
? $\frac{2}{6}$	? $\frac{4}{6}$	? $\frac{6}{6}$

18.

$\frac{1}{8}$	$\frac{2}{8}$	? $\frac{3}{8}$
$\frac{2}{8}$	$\frac{3}{8}$	? $\frac{5}{6}$
? $\frac{3}{8}$	? $\frac{5}{8}$	? $\frac{8}{8}$



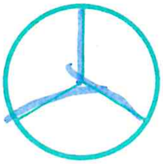
For each story problem write an equation and solve it.
Then write a sentence to answer the question.

1. In art class four girls painted some posters. Judy painted two-eighths of the posters, and Dot painted another three-eighths of them. What part of the total number of posters did these two girls paint?
2. To make some pink paint, George mixed one-fourth of a cup of red paint with two-fourths of a cup of white paint. How much pink paint did George make?
3. To make a string design Neal cut off two-sixths of a piece of string. Then he cut off another one-sixth of the string. What part of the piece of string did Neal use for this design?
4. Kim used one third of a pack of pipe cleaners to make a mobile. She used another third of the pack to make a wire sculpture. What part of the pack of pipe cleaners did Kim use?
5. Terry cut a paper strip to make the first letter of her name. She used three-eighths of the strip and then two-eighths of the strip. What part of the paper strip did she use?
6. To make the first letter of her name Vickie used one-half of a strip and another half of the strip. What part of the paper strip did she use all together?
7. Frank cut two-fourths of a strip of paper, one-fourth of the strip, and another fourth of the strip to make his initial. What part of the paper strip did he use?
8. Elmer cut a piece two-sixths of a strip and three pieces one-sixth of the strip to make his initial. What part of the paper strip did he use?

Copy and complete each equation.

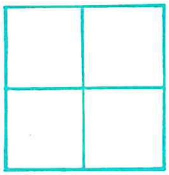
1.

$\frac{1}{3} + \frac{1}{3}? = \frac{2}{3}$



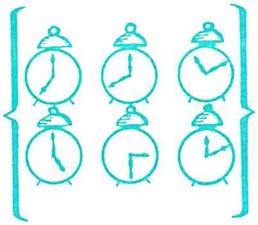
2.

$\frac{2}{4} + \frac{1}{4}? = \frac{3}{4}$



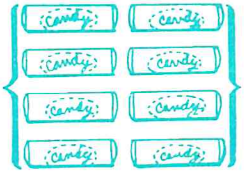
3.

$\frac{2}{6} + \frac{3}{6}? = \frac{5}{6}$



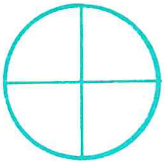
4.

$\frac{3}{8} + \frac{4}{8}? = \frac{7}{8}$



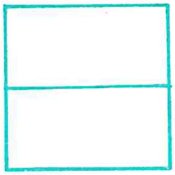
5.

$\frac{2}{4}? + \frac{1}{4} = \frac{3}{4}$



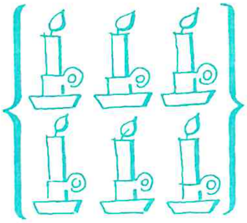
6.

$\frac{0}{2}? + \frac{1}{2} = \frac{1}{2}$



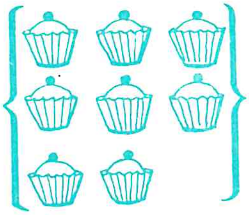
7.

$\frac{2}{6}? + \frac{4}{6} = \frac{6}{6}$



8.

$\frac{4}{8}? + \frac{2}{8} = \frac{6}{8}$



Copy and complete each addition chart.

9.

$\frac{1}{4}$	$\frac{1}{4}$?	$\frac{2}{4}$
$\frac{1}{4}$?	$\frac{1}{4}$	$\frac{2}{4}$?
$\frac{2}{4}$	$\frac{2}{4}$?	$\frac{4}{4}$

10.

$\frac{3}{6}$?	$\frac{2}{6}$?	$\frac{5}{6}$?
?$\frac{1}{6}$	$\frac{0}{6}$	$\frac{1}{6}$
?$\frac{4}{6}$	$\frac{2}{6}$	$\frac{6}{6}$

11.

$\frac{3}{8}$	$\frac{1}{8}$?	$\frac{4}{8}$?
$\frac{0}{8}$?	$\frac{3}{8}$?	$\frac{3}{8}$
$\frac{3}{8}$	$\frac{4}{8}$?	$\frac{7}{8}$

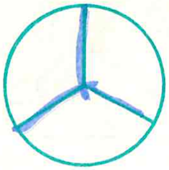
10

Copy and complete each equation.

1.

$\underline{\frac{1}{3}?} + \frac{1}{3} = \frac{2}{3}$

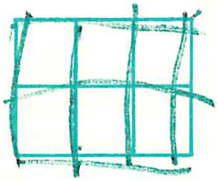
$\frac{2}{3} - \frac{1}{3} = \underline{\frac{1}{3}?}$



2.

$\underline{\ ?\ } + \frac{0}{6} = \frac{4}{6}$

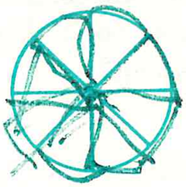
$\frac{4}{6} - \frac{0}{6} = \underline{\ ?\ }$



3.

$\underline{\ ?\ } + \frac{5}{8} = \frac{7}{8}$

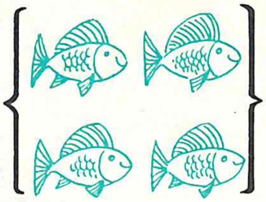
$\frac{7}{8} - \frac{5}{8} = \underline{\ ?\ }$



4.

$\frac{2}{4} + \underline{48?44} = \frac{4}{4}$

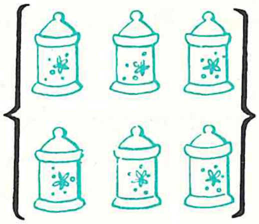
$\frac{4}{4} - \frac{2}{4} = \underline{\ ?\ }$



5.

$\frac{5}{6} + \underline{\ ?\ } = \frac{6}{6}$

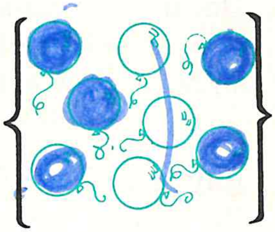
$\frac{6}{6} - \frac{5}{6} = \underline{\ ?\ }$



6.

$\frac{3}{8} + \underline{\ ?\ } = \frac{7}{8}$

$\frac{7}{8} - \frac{3}{8} = \underline{\ ?\ }$



Copy and complete each equation. Thinking about regions or sets may help you.

7. $\frac{7}{8} - \frac{3}{8} = \underline{\ ?\ }$

8. $\frac{4}{6} - \frac{1}{6} = \underline{\ ?\ }$

9. $\frac{1}{3} - \frac{0}{3} = \underline{\ ?\ }$

10. $\frac{4}{8} - \frac{3}{8} = \underline{\ ?\ }$

11. $\frac{3}{8} + \underline{\ ?\ } = \frac{6}{8}$

12. $\underline{\frac{1}{3}?} + \frac{2}{3} = \frac{3}{3}$

13. $\frac{1}{2} - \frac{1}{2} = \underline{\frac{2}{3}?}$

14. $\frac{3}{6} - \frac{2}{6} = \underline{\ ?\ }$

15. $\frac{5}{8} - \frac{5}{8} = \underline{\ ?\ }$

16. $\frac{2}{3} - \frac{1}{3} = \underline{\ ?\ }$

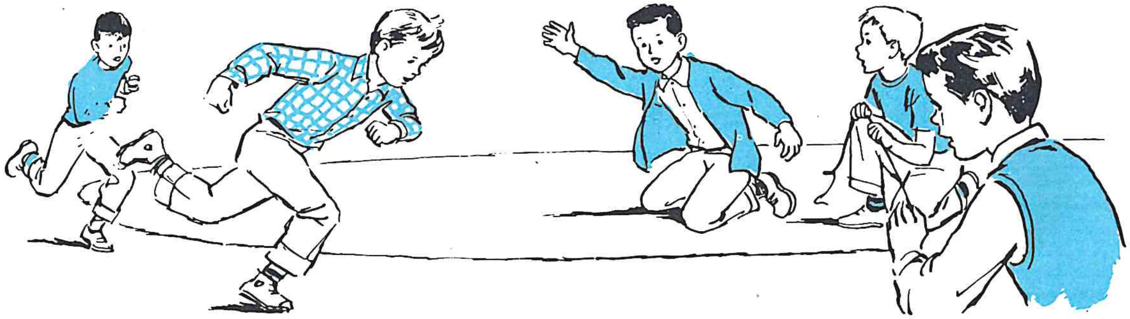
17. $\frac{6}{8} - \frac{2}{8} = \underline{\ ?\ }$

18. $\frac{5}{6} - \frac{3}{6} = \underline{\ ?\ }$

19. $\frac{8}{8} - \frac{4}{8} = \underline{\ ?\ }$

20. $\frac{6}{6} - \frac{2}{6} = \underline{\ ?\ }$

21. $\underline{\ ?\ } + \frac{8}{8} = \frac{8}{8}$



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. In gym class the children played volleyball and dodgeball for three-fourths of an hour. They played dodgeball for one-fourth of an hour. How long did they play volleyball?

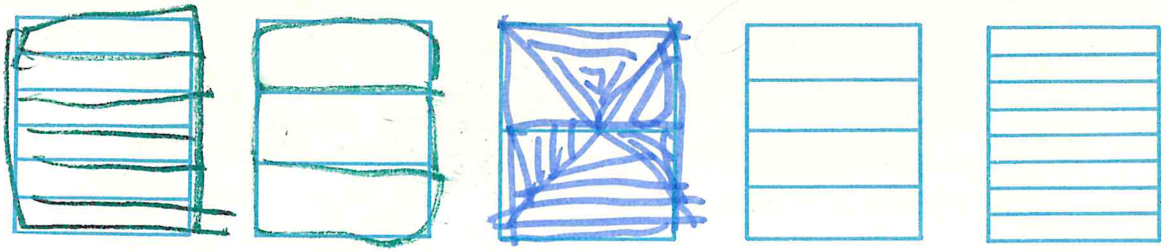
2. One day the class did three different square dances. The first dance took one-sixth of an hour. In all, the dances took three-sixths of an hour. How long did the last two dances last?

3. Ray and Norm liked rope climbing. Ray climbed seven-eighths of the way to the top of one rope. Norm climbed five-eighths of the way to the top of the same rope. How much farther did Ray climb than Norm?

4. In a race, Ted reached the goal in five-sixths of a minute. It took John one-sixth of a minute less time to run the same distance. How long did it take John to reach the goal?

5. In the high jump, Peggy jumped four-sixths of a yard. Jill jumped five-sixths of a yard. How much higher did Jill jump than Peggy?

6. Harry threw a ball five-eighths of the way across the field and Steven threw the ball three-eighths of the way. How much farther did Harry throw the ball than Steven?



Copy and complete each equation. Looking at the regions above may help you.

1. $\frac{1}{6} + \frac{3}{6} = \frac{4}{6}$

2. $\frac{5}{6} + \frac{0}{6} = \frac{5}{6}$

3. $\frac{8}{8} - \frac{8}{8} = \frac{0}{8}$

4. $\frac{2}{6} + \frac{3}{6} = \frac{5}{6}$

5. $\frac{4}{8} - \frac{3}{8} = \frac{1}{8}$

6. $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

7. $\frac{3}{6} + \frac{3}{6} = \frac{6}{6}$

8. $\frac{4}{6} + \frac{2}{6} = \frac{6}{6}$

9. $\frac{2}{6} + \frac{4}{6} = \frac{6}{6}$

10. $\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$

11. $\frac{1}{3} + \frac{2}{3} = \frac{3}{3}$

12. $\frac{3}{3} - \frac{1}{3} = \frac{2}{3}$

13. $\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$

14. $\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$

15. $\frac{2}{2} - \frac{1}{2} = \frac{1}{2}$

16. $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

17. $\frac{3}{4} + \frac{1}{4} = \frac{4}{4}$

18. $\frac{1}{4} + \frac{3}{4} = \frac{4}{4}$

19. $\frac{6}{8} - \frac{3}{8} = \frac{3}{8}$

20. $\frac{2}{8} + \frac{5}{8} = \frac{7}{8}$

21. $\frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

22. $\frac{0}{2} + \frac{0}{2} = \frac{0}{2}$

23. $\frac{4}{6} - \frac{2}{6} = \frac{2}{6}$

24. $\frac{1}{8} + \frac{1}{8} = \frac{2}{8}$

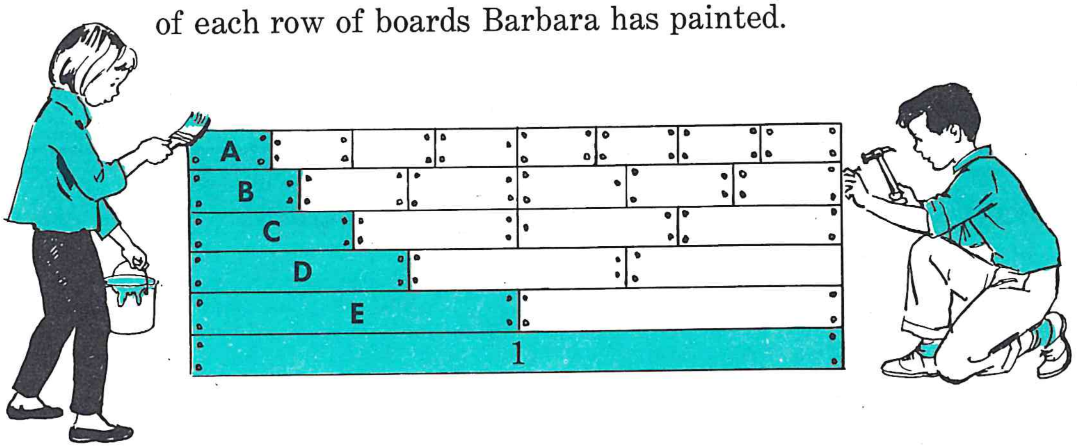
25. $\frac{4}{8} + \frac{4}{8} = \frac{8}{8}$

26. $\frac{5}{8} + \frac{3}{8} = \frac{8}{8}$

27. $\frac{3}{8} + \frac{5}{8} = \frac{8}{8}$

ADDITION AND SUBTRACTION OF FRACTIONAL NUMBERS

Barbara and Tom built a playhouse. One side of it looked like this. Write a fraction to show what part of each row of boards Barbara has painted.



Copy and complete each sentence, writing >, <, or = in place of the ○.

1. $\frac{1}{2} < \frac{1}{8}$

2. $\frac{1}{2} < \frac{1}{3}$

3. $\frac{1}{8} > \frac{1}{6}$

4. $\frac{2}{3} < \frac{1}{8}$

5. $\frac{4}{8} < \frac{1}{2}$

6. $\frac{5}{8} < \frac{1}{4}$

7. $\frac{1}{3} > \frac{3}{4}$

8. $\frac{2}{6} > \frac{1}{3}$

9. $\frac{3}{6} < \frac{2}{6}$

10. $\frac{1}{4} < \frac{2}{8}$

11. $\frac{4}{8} < \frac{1}{3}$

12. $\frac{1}{2} < \frac{2}{4}$

13. $\frac{3}{6} > \frac{6}{8}$

14. $\frac{2}{3} < \frac{4}{6}$

15. $\frac{2}{3} < \frac{7}{8}$

16. $\frac{7}{8} < \frac{5}{6}$

17. $\frac{1}{2} < \frac{3}{6}$

18. $\frac{2}{3} < \frac{5}{8}$

19. $\frac{3}{8} > \frac{1}{2}$

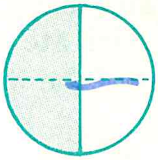
20. 1 [illegible] $\frac{8}{8}$

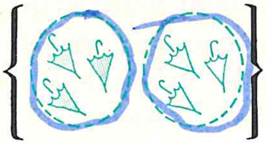
Rewrite the numerals to show the order of the numbers, from least to greatest.

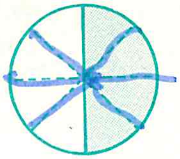
21. $\frac{3}{8}, \frac{1}{8}, \frac{3}{4}, \frac{1}{2}, \frac{7}{8}, \frac{5}{8}, \frac{1}{4}$

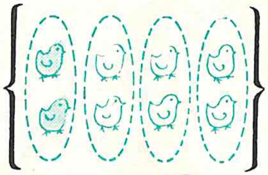
22. $\frac{3}{6}, \frac{2}{3}, \frac{6}{6}, \frac{1}{3}, \frac{0}{2}, \frac{5}{6}, \frac{1}{6}$

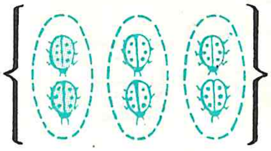
Copy and complete each equation. It may help you to look at each region or set in two different ways.

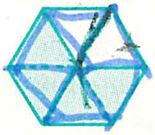

1. $\frac{1}{2} = \frac{2}{4}$

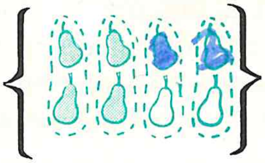

2. $\frac{1}{2} = \frac{3}{6}$

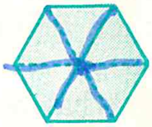

3. $\frac{1}{2} = \frac{4}{8}$


4. $\frac{1}{4} = \frac{2}{8}$


5. $\frac{1}{3} = \frac{2}{6}$


6. $\frac{2}{3} = \frac{4}{6}$


7. $\frac{2}{4} = \frac{4}{8}$


8. $\frac{2}{2} = \frac{6}{6}$

Copy and complete each equation.
Thinking about regions or sets may help you.

9. $1 = \frac{2}{2}$

10. $\frac{2}{2} = \frac{4}{4}$

11. $\frac{3}{4} = \frac{6}{8}$

12. $\frac{2}{2} = \frac{2}{8}$

13. $1 = \frac{3}{3}$

14. $\frac{2}{4} = \frac{?}{2}$

15. $\frac{?}{3} = \frac{6}{6}$

16. $\frac{8}{8} = \frac{?}{4}$

17. $\frac{0}{2} = \frac{?}{6}$

18. $1 = \frac{?}{4}$

19. $\frac{0}{4} = \frac{?}{8}$

20. $\frac{4}{6} = \frac{?}{3}$

21. $\frac{4}{8} = \frac{?}{2}$

22. $\frac{1}{3} = \frac{?}{6}$

23. $\frac{6}{8} = \frac{?}{4}$

24. $\frac{8}{?} = 1$

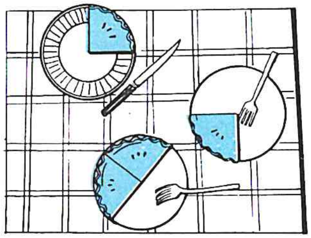
25. $\frac{1}{2} = \frac{?}{4} = \frac{?}{6} = \frac{?}{8}$

26. $\frac{0}{2} = \frac{?}{3} = \frac{?}{4} = \frac{?}{6} = \frac{?}{8}$

27. $1 = \frac{?}{2} = \frac{?}{3} = \frac{?}{4} = \frac{?}{6} = \frac{?}{8}$

28. $\frac{1}{3} = \frac{?}{6}$

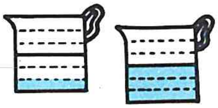
For each story problem, write an equation and solve it.
Then write a sentence to answer the question.



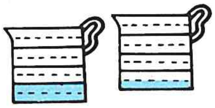
1. Mother baked a little pie for Tim and Tom. Tom ate one-half of the pie. Tim ate only one-fourth of the pie. What part of the whole pie did the two boys eat?

$$\frac{1}{2} + \frac{1}{4} = \underline{\ ?\ }$$

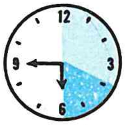
2. Mother also baked a big pie to take to Grandmother. She used one-sixth cup of sugar in the little pie and one-half cup of sugar in the big pie. What part of a cup of sugar did she use in both pies?



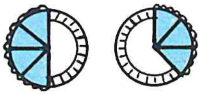
3. Mother used one-fourth cup of flour for the big pie and one-eighth cup of flour for the little pie. What part of a cup of flour did Mother use in the two pies?



4. It took Mother one-third of an hour to make the big pie and one-sixth of an hour to make the little pie. What part of an hour did Mother spend making the two pies?



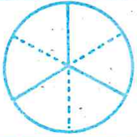
5. Grandmother served one-half of the big pie for lunch and three-eighths of the pie for dinner. What part of the pie did Grandmother serve for lunch and dinner?



Copy and complete each equation.

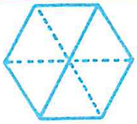
6.

$$\frac{2}{3} + \frac{1}{6} = \underline{\ ?\ }$$



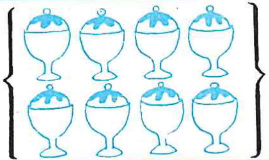
8.

$$\frac{1}{2} + \frac{1}{6} = \underline{\ ?\ }$$



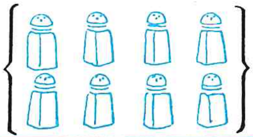
7.

$$\frac{1}{2} + \frac{1}{8} = \underline{\ ?\ }$$



9.

$$\frac{1}{4} + \frac{3}{8} = \underline{\ ?\ }$$

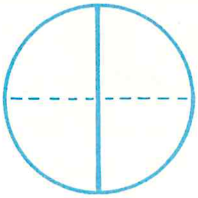


Copy and complete each equation.

1.

$\frac{1}{4} + \frac{1}{2} =$?

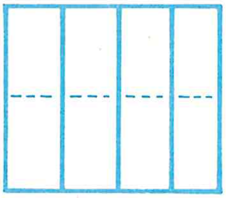
$\frac{1}{4} + \frac{2}{4} =$?



2.

$\frac{3}{4} + \frac{1}{8} =$?

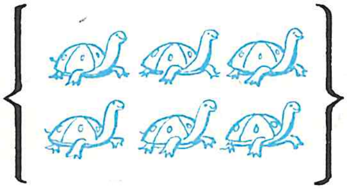
$\frac{6}{8} + \frac{1}{8} =$?



3.

$\frac{1}{6} + \frac{1}{3} =$?

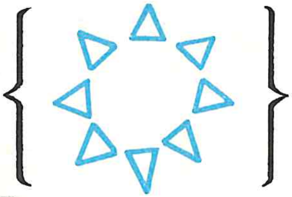
$\frac{1}{6} + \frac{2}{6} =$?



4.

$\frac{5}{8} + \frac{1}{4} =$?

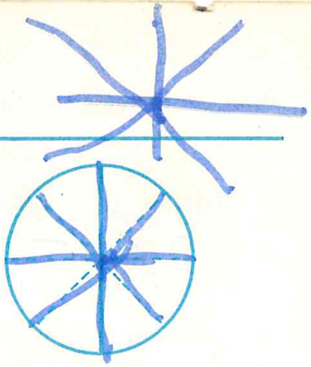
$\frac{5}{8} + \frac{2}{8} =$?



5.

$\frac{3}{8} + \frac{1}{2} =$?

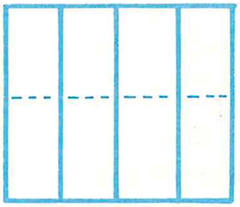
$\frac{3}{8} + \frac{4}{8} =$?



6.

$\frac{3}{8} + \frac{1}{4} =$?

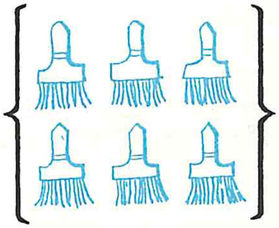
$\frac{3}{8} + \frac{2}{8} =$?



7.

$\frac{1}{2} + \frac{1}{3} =$?

$\frac{3}{6} + \frac{2}{6} =$?



8.

$\frac{1}{2} + \frac{0}{4} =$?

$\frac{2}{4} + \frac{0}{4} =$?

Copy and complete each addition chart. Thinking about regions may help you.

9.

$\frac{1}{4}$	$\frac{1}{4}$	?
$\frac{1}{2}$	$\frac{0}{4}$	?
?	?	?

10.

$\frac{1}{3}$	$\frac{1}{6}$	?
$\frac{1}{3}$	$\frac{1}{6}$	?
?	?	?

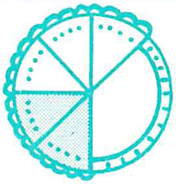
11.

$\frac{1}{4}$	$\frac{1}{8}$	?
$\frac{1}{8}$	$\frac{1}{2}$	?
?	?	?

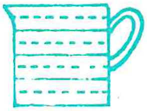
For each story problem, write an equation and solve it. Then write a sentence to answer the question.

1. Mother gave five-eighths of a pie to Aunt Mary. For lunch Aunt Mary served one-fourth of the whole pie. How much of the pie was left?

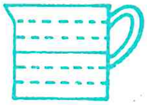
$\frac{5}{8} - \frac{1}{4} = \underline{\ ?\ }$



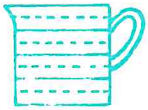
2. After Mother measured $\frac{3}{8}$ cup of flour, she saw that the recipe asked for $\frac{3}{4}$ cup of flour. How much more flour did she need?



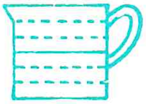
3. Mother had $\frac{1}{6}$ cup of brown sugar, but needed $\frac{1}{2}$ cup for cookies. How much brown sugar did she need to borrow from her neighbor?



4. Mother used some milk from a cup that was three-fourths full. If the cup is now one-eighth full, how much milk did Mother use?



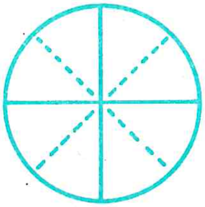
5. From a cup that was two-thirds full of sugar, Mother poured one-sixth of a cup of sugar. How much sugar was left?



Copy and complete each equation.

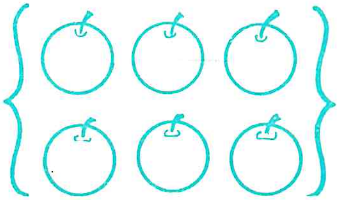
6.

$\frac{5}{8} + \underline{\ ?\ } = \frac{3}{4}$



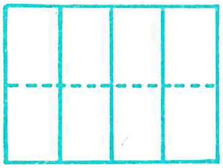
7.

$\frac{1}{2} + \underline{\ ?\ } = \frac{4}{6}$



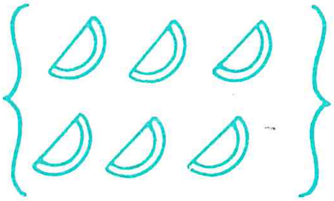
8.

$\frac{7}{8} - \frac{1}{4} = \underline{\ ?\ }$



9.

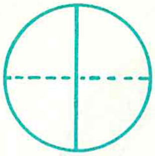
$\frac{5}{6} - \frac{1}{3} = \underline{\ ?\ }$



Copy and complete each equation.

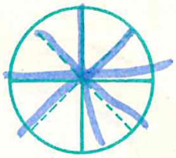
1. $\frac{1}{2} + \underline{\ ?\ } = \frac{3}{4}$

$\frac{2}{4} + \underline{\ ?\ } = \frac{3}{4}$



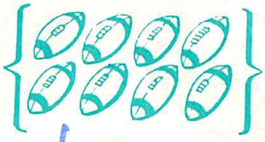
2. $\frac{5}{8} - \frac{1}{2} = \underline{\ ?\ }$

$\frac{5}{8} - \frac{4}{8} = \underline{\ ?\ }$



3. $\underline{\ ?\ } + \frac{1}{2} = \frac{7}{8}$

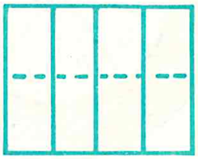
$\underline{\ ?\ } + \frac{4}{8} = \frac{7}{8}$



16

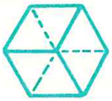
4. $\frac{7}{8} - \frac{1}{8} = \underline{\ ?\ }$

$\frac{7}{8} - \frac{1}{8} = \underline{\ ?\ }$



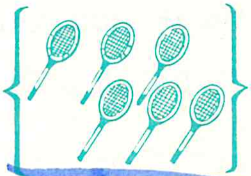
5. $\frac{1}{6} + \underline{\ ?\ } = \frac{1}{3}$

$\frac{1}{6} + \underline{\ ?\ } = \frac{2}{6}$



6. $\frac{2}{3} - \frac{1}{2} = \underline{\ ?\ }$

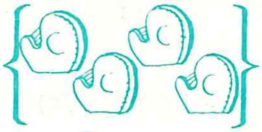
$\frac{4}{6} - \frac{3}{6} = \underline{\ ?\ }$



32

7. $\frac{1}{4} + \underline{\ ?\ } = \frac{3}{4}$

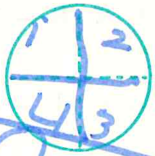
$\frac{1}{4} + \underline{\ ?\ } = \frac{3}{4}$



8

8. $1 - \frac{1}{4} = \underline{\ ?\ }$

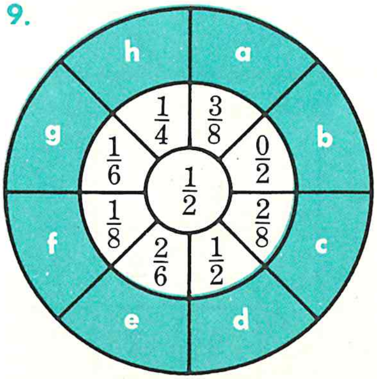
$\frac{4}{4} - \frac{1}{4} = \underline{\ ?\ }$



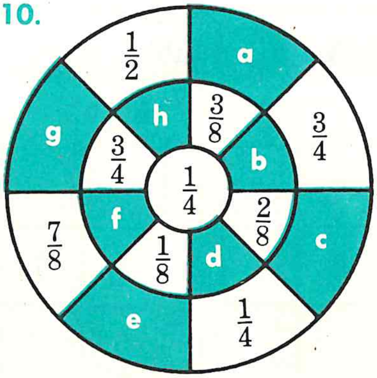
8

Complete each addition wheel.

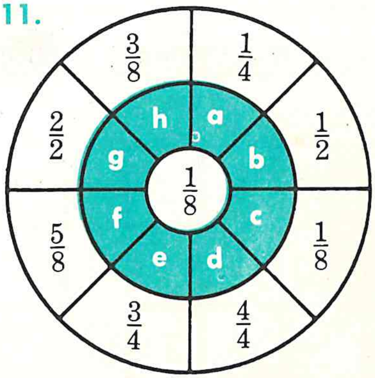
9.



10.



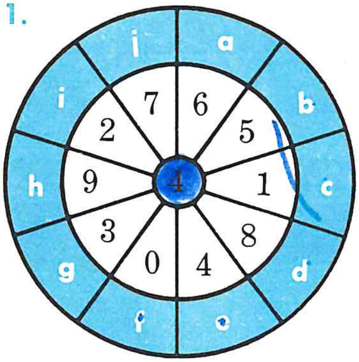
11.



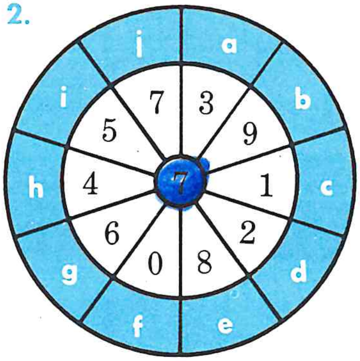
MULTIPLICATION OF WHOLE NUMBERS

Complete each multiplication wheel by finding the products.

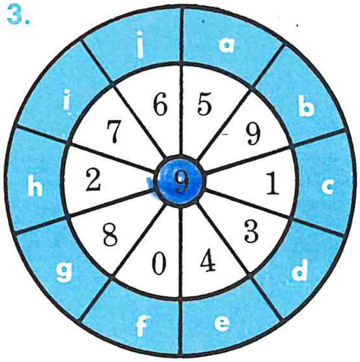
1.



2.



3.



Use the distributive property to complete each equation.

4. 9 × (5 + 4) = ? + ? = $\boxed{1}$

5. 8 × (2 + 5) = A?0 + 6?5 = $\boxed{4}$

6. 6 × (8 − 2) = 1?8 − ? = $\boxed{6}$

7. 5 × (1 + 5) = 5?10 + ? = $\boxed{8}$

8. 8 × (8 − 1) = ? − ? = $\boxed{9}$

9. ? × (9 + 3) = 72 + 24 = $\boxed{1}$

10. 6 × (5 − 3) = ? − ? = □

11. 2 × (1 + 8) = ? + ? = □

12. 3 × (7 − 7) = ? − ? = □

13. 5 × (2 + 2) = ? + ? = □

14. 3 × (3 + 5) = ? + ? = □

15. ? × (6 + 3) = 54 + 27 = □

Copy and complete each multiplication table.

16.

2	3	?
4	1	?
?	?	?

17.

9	7	?
8	0	?
?	?	?

18.

6	?	6
?	6	?
6	?	36

19.

2	?	8
?	2	?
8	8	?

Copy each problem and find the products.

1. $3 \times 70 = 3 \times (7 \times 10)$
$= (3 \times 7) \times 10$
$= \square \times 10$
$= \underline{\ ?\ }$

2. $4 \times 50 = 4 \times (\underline{\ ?\ } \times 10)$
$= (4 \times \underline{\ ?\ }) \times 10$
$= \square \times 10$
$= \underline{\ ?\ }$

3. $8 \times 60 = 8 \times (6 \times \underline{\ ?\ })$
$= (8 \times 6) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

---

4. 4×2= 8
4×20= 80

5. 7×6= 42
7×60= 420

6. 6×5= 30
6×50= 300

7. 7×5= 35
70×5= 350

8. 8×3= 24
8×30= 240

9. 6×6= 36
60×6= 360

10. 5×8= 40
5×80= 400

11. 5×9= 45
50×9= 450

---

12. 90 × 3 = 220

13. 80 × 4 = 320

14. 70 × 2 = 140

15. 30 × 6 = 180

16. 50 × 3 = 150

17. 20 × 9 = 180

18. 70 × 6 = 420

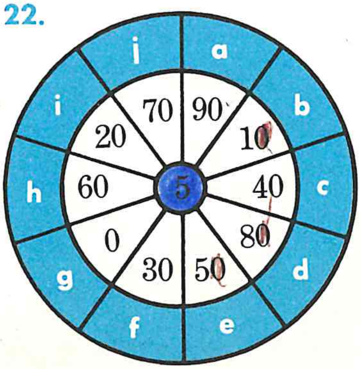
19. 80 × 8 = 640

20. 90 × 9 = 720

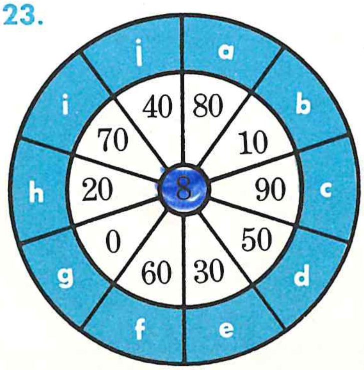
21. 70 × 8 = 560

Complete each multiplication wheel by finding the products.

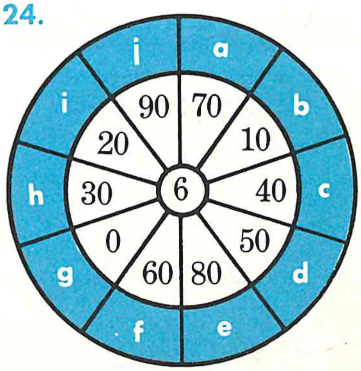
22.



23.



24.



Use the distributive property to complete each equation.

1. $3 \times 24 = 3 \times (20 + 4)$

$= (3 \times 20) + (3 \times 4)$

$=$? + ?

$=$?

$3 \times (20 + 4) =$? + ? = ?

3. Copy and complete.

$$\begin{array}{r} 20+4 \\ \times \quad\ 3 \\ \hline \end{array}$$

? + ? = ?

$$\begin{array}{r} 2\ 4 \\ \times\ \ 3 \\ \hline \square\square \\ \square\square \\ \hline \square\square \end{array}$$

$$\begin{array}{r} {}^{1} \\ 2\ 4 \\ \times\ \ 3 \\ \hline \end{array}$$

Find the products.

	A	B	C	D	E	F
4.	47 × 2 94	12 × 6 72	25 × 2 50	27 × 3 61	25 × 4 100	15 × 2 30
5.	15 × 5 75	35 × 3 105	43 × 1 43	29 × 2 58	14 × 7 98	26 × 3 78

Copy and solve each equation.

6. 13 × 3 = 39

7. 5 × 21 = 105

8. 4 × 33 = 132

9. 41 × 4 = 164

10. 31 × 2 = 62

11. 26 × 3 = 78

12. 5 × $\overset{2}{2}5$ = 125

13. 6 × $\overset{2}{1}4$ = 84

14. 46 × 2 = 92

15. 3 × 17 = 51

16. 25 × 4 = ?

17. 3 × 54 = ?

Use the distributive property to complete each equation.

1. 8 × (30 + 4) = ? + ? = ?

2. 7 × (20 + 6) = ? + ? = ?

3. 2 × (80 + 6) = ? + ? = ?

4. 7 × (80 + 7) = ? + ? = ?

5. 9 × (20 + 9) = ? + ? = ?

6. 4 × (90 + 3) = ? + ? = ?

7. Copy and complete.

$$\begin{array}{r} 90+3 \\ \times \quad 4 \\ \hline ? + ? = ? \end{array} \qquad \begin{array}{r} 9\ 3 \\ \times \quad 4 \\ \hline \square\square \\ \square\square\square \\ \hline \square\square\square \end{array} \qquad \begin{array}{r} \overset{1}{9}\ 3 \\ \times \quad 4 \\ \hline \end{array}$$

Find the products.

8. $\begin{array}{r} 44 \\ \times\ 4 \\ \hline 176 \end{array}$ **9.** $\begin{array}{r} 15 \\ \times\ 5 \\ \hline 75 \end{array}$ **10.** $\begin{array}{r} 96 \\ \times\ 6 \\ \hline 576 \end{array}$ **11.** $\begin{array}{r} 50 \\ \times\ 6 \\ \hline 300 \end{array}$ **12.** $\begin{array}{r} 47 \\ \times\ 7 \\ \hline 329 \end{array}$

13. $\begin{array}{r} \overset{3}{7}5 \\ \times\ 7 \\ \hline 525 \end{array}$ **14.** $\begin{array}{r} 93 \\ \times\ 9 \\ \hline 837 \end{array}$ **15.** $\begin{array}{r} 41 \\ \times\ 9 \\ \hline 369 \end{array}$ **16.** $\begin{array}{r} \overset{2}{6}7 \\ \times\ 4 \\ \hline 268 \end{array}$ **17.** $\begin{array}{r} \overset{4}{8}6 \\ \times\ 8 \\ \hline 688 \end{array}$

Copy each table. Round each two-digit factor to the nearest multiple of ten and multiply to estimate the product. Then find the exact product.

18.	Estimated Product	Exact Product
69 × 4	?	?
31 × 7	?	?
47 × 2	?	?
78 × 6	?	?

19.	Estimated Product	Exact Product
55 × 2	?	?
22 × 9	?	?
99 × 5	?	?
8 × 65	?	?

1. John saved a penny each day. At the end of a week, how many cents had John saved? 7 × 1 = 7

2. Bill saved a dime each week. At the end of seven weeks, how many cents had Bill saved? 7 × 10 = 70

3. Tony saved a dollar each month. At the end of seven months, how many cents had Tony saved? 7 × 100 = 700

Copy and solve each set of equations.

4. 5 × 1 = 5
5 × 10 = 50
5 × 100 = 500

5. 4 × 1 = 4
4 × 10 = 40
4 × 100 = 400

6. 3 × 1 = 3
3 × 10 = 30
3 × 100 = 300

7. 37 × 1 = 37
37 × 10 = 370
37 × 100 = 3700

8. 19 × 1 = 19
19 × 10 = 190
19 × 100 = 1900

9. 2 × 1 = 2
2 × 10 = 20
2 × 100 = 200

10. 26 × 1 = 26
26 × 10 = 260
26 × 100 = 2600

11. 8 × 1 = 8
8 × 10 = 80
8 × 100 = 800

Copy and complete each sequence.

12. 10, 20, 30, 40, ?, ?, ?, ?, ?
Each term in this sequence is a multiple of 10.

13. 1, 2, 3, ?, ?, ?, ?, ?, ?
Each term in this sequence is a multiple of ?

14. 100, ?, ?, 400, ?, ?, ?, ?, ?
Each term in this sequence is a ? of 100.

Use the associative property to find the products.

1.
6×700=6×(7×100)
=(6×7)×100
=□×100
=?

2.
8×500=8×(?×100)
=(8×?)×100
=□×100
=?

3.
7×300=7×(3×?)
=(7×3)×?
=□×?
=?

Find the products.

4. 8×7 = 56
8×70 = 560
8×700 = 5600

5. 6×7 = 42
6×70 = 420
6×700 = 4200

6. 9×2 = 18
9×20 = 180
9×200 = 1800

7. 7×4 = 28
7×40 = 280
7×400 = 2800

8. 7×9 = 63
7×90 = 630
7×900 = 6300

9. 9×8 = 22
9×80 = 220
9×800 = 2200

10. 4×4 = 16
4×40 = 160
4×400 = 1600

11. 5×7 = 35
5×70 = 350
5×700 = 3500

12. $\begin{array}{r} 400 \\ \times\ 5 \\ \hline 2000 \end{array}$

13. $\begin{array}{r} 700 \\ \times\ 8 \\ \hline 5600 \end{array}$

14. $\begin{array}{r} 800 \\ \times\ 3 \\ \hline 2400 \end{array}$

15. $\begin{array}{r} 900 \\ \times\ 2 \\ \hline 1800 \end{array}$

16. $\begin{array}{r} 700 \\ \times\ 7 \\ \hline 4900 \end{array}$

17. $\begin{array}{r} 400 \\ \times\ 9 \\ \hline 3600 \end{array}$

18. $\begin{array}{r} 300 \\ \times\ 6 \\ \hline 1800 \end{array}$

19. $\begin{array}{r} 900 \\ \times\ 4 \\ \hline 3600 \end{array}$

20. $\begin{array}{r} 200 \\ \times\ 7 \\ \hline 1400 \end{array}$

21. $\begin{array}{r} 600 \\ \times\ 5 \\ \hline 3000 \end{array}$

22. $\begin{array}{r} 600 \\ \times\ 6 \\ \hline 3600 \end{array}$

23. $\begin{array}{r} 600 \\ \times\ 8 \\ \hline 4800 \end{array}$

24. $\begin{array}{r} 2200 \\ \times\ 3 \\ \hline 6600 \end{array}$

25. $\begin{array}{r} 900 \\ \times\ 9 \\ \hline 8100 \end{array}$

26. $\begin{array}{r} 1200 \\ \times\ 4 \\ \hline 4800 \end{array}$

Use the distributive property to complete each equation.

1. $3 \times (100 + 30 + 6) = \underline{\quad ? \quad} + \underline{\quad ? \quad} + \underline{\quad ? \quad} = \underline{\quad ? \quad}$

2. $2 \times (300 + 10 + 4) = \underline{\quad ? \quad} + \underline{\quad ? \quad} + \underline{\quad ? \quad} = \underline{\quad ? \quad}$

3. $2 \times (400 + 30 + 9) = \underline{\quad ? \quad} + \underline{\quad ? \quad} + \underline{\quad ? \quad} = \underline{\quad ? \quad}$

---

4. Copy and complete.

$$\begin{array}{l} \quad 400 + 30 + 9 \\ \times \qquad\qquad\quad\ 2 \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array} \qquad \begin{array}{r} 4\,3\,9 \\ \times \quad 2 \\ \hline \square\square \\ \square\square \\ \square\square\square \\ \hline \square\square\square \end{array} \qquad \begin{array}{r} 4\,\overset{1}{3}\,9 \\ \times \quad 2 \\ \hline \end{array}$$

Find the products.

5. $\begin{array}{r} 315 \\ \times\ 3 \\ \hline \end{array}$
6. $\begin{array}{r} 126 \\ \times\ 2 \\ \hline \end{array}$
7. $\begin{array}{r} 317 \\ \times\ 2 \\ \hline \end{array}$
8. $\begin{array}{r} 139 \\ \times\ 3 \\ \hline \end{array}$
9. $\begin{array}{r} 335 \\ \times\ 2 \\ \hline \end{array}$

10. $\begin{array}{r} 216 \\ \times\ 2 \\ \hline \end{array}$
11. $\begin{array}{r} 318 \\ \times\ 3 \\ \hline \end{array}$
12. $\begin{array}{r} 117 \\ \times\ 5 \\ \hline \end{array}$
13. $\begin{array}{r} 137 \\ \times\ 3 \\ \hline \end{array}$
14. $\begin{array}{r} 114 \\ \times\ 4 \\ \hline \end{array}$

15. $\begin{array}{r} 114 \\ \times\ 6 \\ \hline \end{array}$
16. $\begin{array}{r} 127 \\ \times\ 2 \\ \hline \end{array}$
17. $\begin{array}{r} 138 \\ \times\ 2 \\ \hline \end{array}$
18. $\begin{array}{r} 115 \\ \times\ 4 \\ \hline \end{array}$
19. $\begin{array}{r} 319 \\ \times\ 2 \\ \hline \end{array}$

Use the distributive property to complete each equation.

1. 9 × (100 + 30 + 1) = ? + ? + ? = ?

2. 3 × (400 + 70 + 3) = ? + ? + ? = ?

Copy each problem and find the products.

3.
$$\begin{array}{r} 200 + 80 + 1 \\ \times \qquad\qquad 6 \\ \hline \end{array}$$
1200 + 320 + 6 = ?

4.
$$\begin{array}{r} 782 \\ \times \quad 4 \\ \hline \boxed{8} \\ \boxed{3}\boxed{2}\boxed{0} \\ \boxed{2}\boxed{8}\boxed{0}\boxed{0} \\ \hline \boxed{2}\boxed{1}\boxed{2}\boxed{8} \end{array}$$

5.
$$\begin{array}{r} \overset{5}{4}81 \\ \times \quad 7 \\ \hline 7 \\ 560 \\ 2800 \\ \hline 3367 \end{array}$$

6.
$$\begin{array}{r} 164 \\ \times \quad 4 \\ \hline 16 \\ 248 \\ 400 \\ \hline 656 \end{array}$$

7.
$$\begin{array}{r} 283 \\ \times \quad 3 \\ \hline 9 \\ 240 \end{array}$$

8. 374 × 2

9. 251 × 5

10. 591 × 8

11. 691 × 7

12. 961 × 6

13. 251 × 8

14. 951 × 3

15. 891 × 5

Copy and complete each sentence, writing >, <, or = in place of the ○.

16. 741 × 8 ○ 7000 − 1072

17. 1037 + 649 ○ 753 × 2

18. 4 × 862 ○ 2577 + 488

19. 961 × 6 ○ 5836 + 875

20. 3050 − 277 ○ 853 × 3

21. 381 × 5 ○ 2502 − 597

Use the distributive property to complete each equation.

1. $9 \times (800 + 30 + 9) = \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

2. $4 \times (600 + 0 + 7) = \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

Copy each problem and find the products.

3.

$$\begin{array}{r} 600 + 0 + 7 \\ \times \qquad\qquad\quad 4 \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

$$\begin{array}{r} 6\ 0\ 7 \\ \times \quad\ 4 \\ \hline \square\square \\ \square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

$$\begin{array}{cccc} & & 2 & \\ & 6 & 0 & 7 \\ \times & & & 4 \\ \hline \end{array}$$

4.

$$\begin{array}{r} 300 + 70 + 8 \\ \times \qquad\qquad\quad 9 \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

5.

$$\begin{array}{r} 7\ 5\ 9 \\ \times \quad\ 3 \\ \hline \square\square \\ \square\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

6.

$$\begin{array}{cccc} & 3 & 2 & \\ & 3 & 9 & 6 \\ \times & & & 4 \\ \hline \end{array}$$

7. $\begin{array}{r} 105 \\ \times\ 6 \\ \hline \end{array}$ **8.** $\begin{array}{r} 385 \\ \times\ 2 \\ \hline \end{array}$ **9.** $\begin{array}{r} 559 \\ \times\ 5 \\ \hline \end{array}$ **10.** $\begin{array}{r} 709 \\ \times\ 7 \\ \hline \end{array}$ **11.** $\begin{array}{r} 459 \\ \times\ 4 \\ \hline \end{array}$

12. $\begin{array}{r} 976 \\ \times\ 5 \\ \hline \end{array}$ **13.** $\begin{array}{r} 708 \\ \times\ 8 \\ \hline \end{array}$ **14.** $\begin{array}{r} 670 \\ \times\ 6 \\ \hline \end{array}$ **15.** $\begin{array}{r} 567 \\ \times\ 8 \\ \hline \end{array}$ **16.** $\begin{array}{r} 905 \\ \times\ 9 \\ \hline \end{array}$

Copy and complete each set of equations.

1. $5 \times 1 = \underline{\ ?\ }$
$5 \times 10 = \underline{\ ?\ }$
$5 \times 100 = \underline{\ ?\ }$
$5 \times 1000 = \underline{\ ?\ }$

2. $2 \times 1 = \underline{\ ?\ }$
$2 \times 10 = \underline{\ ?\ }$
$2 \times 100 = \underline{\ ?\ }$
$2 \times 1000 = \underline{\ ?\ }$

3. $7 \times 1 = \underline{\ ?\ }$
$7 \times 10 = \underline{\ ?\ }$
$7 \times 100 = \underline{\ ?\ }$
$7 \times 1000 = \underline{\ ?\ }$

4. $39 \times 1 = \underline{\ ?\ }$
$39 \times 10 = \underline{\ ?\ }$
$39 \times 100 = \underline{\ ?\ }$
$39 \times 1000 = \underline{\ ?\ }$

5. $16 \times 1 = \underline{\ ?\ }$
$16 \times 10 = \underline{\ ?\ }$
$16 \times 100 = \underline{\ ?\ }$
$16 \times 1000 = \underline{\ ?\ }$

6. $3 \times 1 = \underline{\ ?\ }$
$3 \times 10 = \underline{\ ?\ }$
$3 \times 100 = \underline{\ ?\ }$
$3 \times 1000 = \underline{\ ?\ }$

7. $24 \times 1 = \underline{\ ?\ }$
$24 \times 10 = \underline{\ ?\ }$
$24 \times 100 = \underline{\ ?\ }$
$24 \times 1000 = \underline{\ ?\ }$

8. $8 \times 1 = \underline{\ ?\ }$
$8 \times 10 = \underline{\ ?\ }$
$8 \times 100 = \underline{\ ?\ }$
$8 \times 1000 = \underline{\ ?\ }$

Use the associative property to find the products.

9.
$$\begin{aligned} 6 \times 4000 &= 6 \times (4 \times 1000) \\ &= (6 \times 4) \times 1000 \\ &= \square \times 1000 \\ &= \underline{\ ?\ } \end{aligned}$$

10.
$$\begin{aligned} 5 \times 6000 &= 5 \times (6 \times 1000) \\ &= (5 \times \underline{\ ?\ }) \times 1000 \\ &= \square \times 1000 \\ &= \underline{\ ?\ } \end{aligned}$$

Find the products.

11. $\begin{array}{r} 8000 \\ \times\ \ 9 \\ \hline \end{array}$ **12.** $\begin{array}{r} 6000 \\ \times\ \ 7 \\ \hline \end{array}$ **13.** $\begin{array}{r} 8000 \\ \times\ \ 4 \\ \hline \end{array}$ **14.** $\begin{array}{r} 8000 \\ \times\ \ 7 \\ \hline \end{array}$ **15.** $\begin{array}{r} 5000 \\ \times\ \ 5 \\ \hline \end{array}$

16. $\begin{array}{r} 4000 \\ \times\ \ 9 \\ \hline \end{array}$ **17.** $\begin{array}{r} 7000 \\ \times\ \ 7 \\ \hline \end{array}$ **18.** $\begin{array}{r} 9000 \\ \times\ \ 9 \\ \hline \end{array}$ **19.** $\begin{array}{r} 4000 \\ \times\ \ 4 \\ \hline \end{array}$ **20.** $\begin{array}{r} 9000 \\ \times\ \ 5 \\ \hline \end{array}$

21. $\begin{array}{r} 9000 \\ \times\ \ 7 \\ \hline \end{array}$ **22.** $\begin{array}{r} 3000 \\ \times\ \ 6 \\ \hline \end{array}$ **23.** $\begin{array}{r} 8000 \\ \times\ \ 8 \\ \hline \end{array}$ **24.** $\begin{array}{r} 6000 \\ \times\ \ 6 \\ \hline \end{array}$ **25.** $\begin{array}{r} 9000 \\ \times\ \ 6 \\ \hline \end{array}$

Copy and complete.

1.

$$\begin{array}{r} 3000 + 500 + 40 + 6 \\ \times \qquad\qquad\qquad\quad 7 \\ \hline \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array}$$

2.

$$\begin{array}{r} 2\,8\,9\,3 \\ \times \qquad 8 \\ \hline \square\square \\ \square\square\square \\ \square\square\square\square \\ \square\square\square\square\square \\ \hline \square\square\square\square\square \end{array}$$

3.

$$\begin{array}{r} {\scriptstyle 2\ 1\ 2\ \ } \\ 3\,6\,2\,5 \\ \times \qquad 4 \\ \hline \end{array}$$

Find the products.

4. $\begin{array}{r} 1324 \\ \times \quad 3 \\ \hline \end{array}$

72

5. $\begin{array}{r} 2152 \\ \times \quad 4 \\ \hline \end{array}$

42

6. $\begin{array}{r} 1169 \\ \times \quad 5 \\ \hline \end{array}$

89

7. $\begin{array}{r} 1006 \\ \times \quad 5 \\ \hline \end{array}$

24

8. $\begin{array}{r} 1051 \\ \times \quad 7 \\ \hline \end{array}$

1357
6

9. $\begin{array}{r} 3279 \\ \times \quad 3 \\ \hline \end{array}$

909

10. $\begin{array}{r} 6207 \\ \times \quad 4 \\ \hline \end{array}$

292

11. $\begin{array}{r} 8151 \\ \times \quad 6 \\ \hline \end{array}$

27

12. $\begin{array}{r} 5098 \\ \times \quad 8 \\ \hline \end{array}$

72

13. $\begin{array}{r} 7328 \\ \times \quad 3 \\ \hline \end{array}$

0

14. $\begin{array}{r} 9374 \\ \times \quad 2 \\ \hline \end{array}$

15. $\begin{array}{r} 7056 \\ \times \quad 9 \\ \hline \end{array}$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Mary writes to her brother in Mexico once a week. How much does Mary spend on 8-cent airmail stamps in one year?

2. Mrs. Evans mailed 237 Christmas cards this year. She bought one 5-cent stamp for each card. How much did Mrs. Evans spend for stamps?

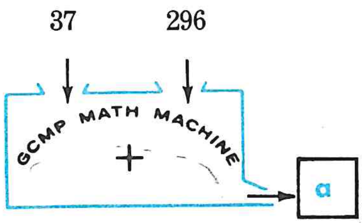
3. Mary collects stamps from foreign countries. She received 6 packets of stamps from her uncle in Europe. Each packet contained 144 stamps. How many stamps did Mary receive?

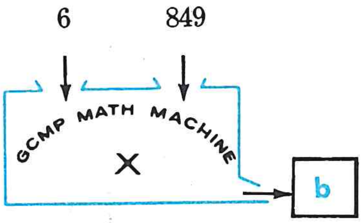
4. Mary pastes 8 stamps on each page of her stamp book. On the first 30 pages, she has stamps from South America. On the next 9 pages, she has stamps from Mexico. How many stamps are on these 39 pages?

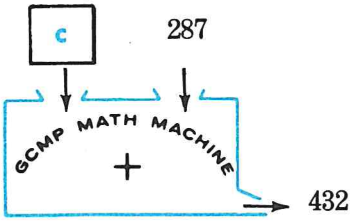
5. Mrs. Evans has filled 31 pages of a trading-stamp book. The book has 40 pages in it. Thirty stamps are to be pasted on each page. How many more stamps does she need to fill the book?

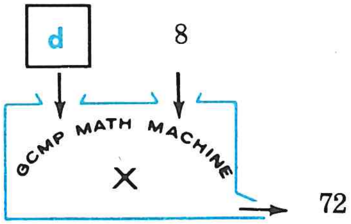
6. There are 1200 stamps in each of Mrs. Evans's trading books. She has filled 9 books. How many stamps did this take?

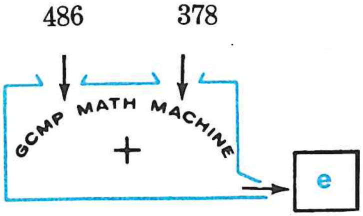
Find the missing numbers for these machines.

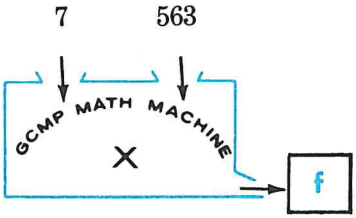


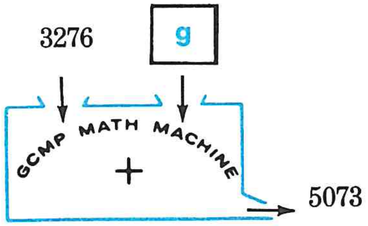


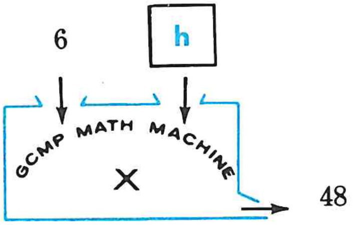


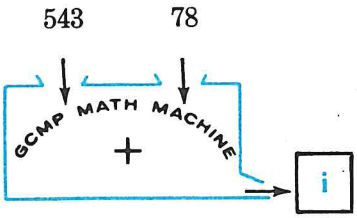


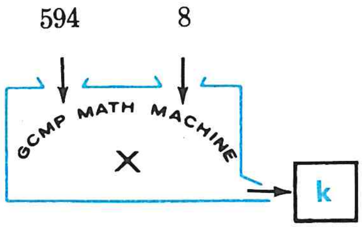


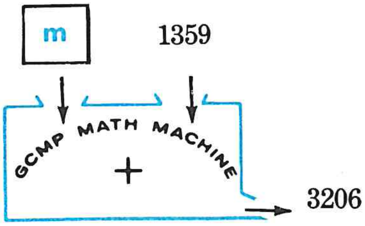


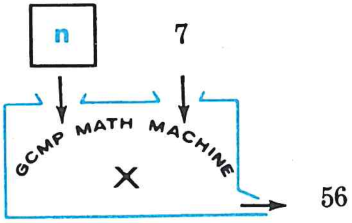


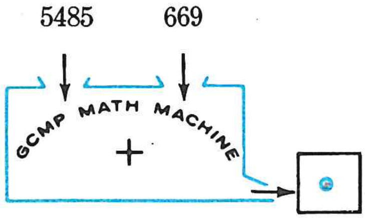


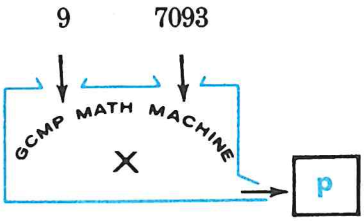


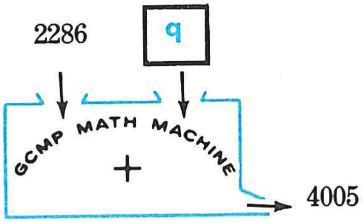


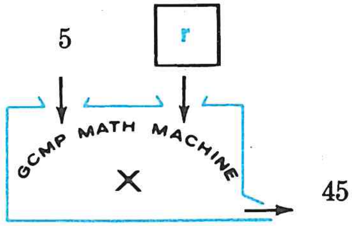


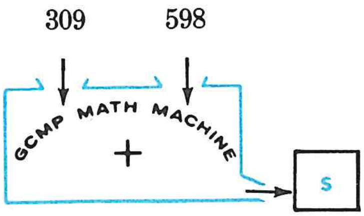


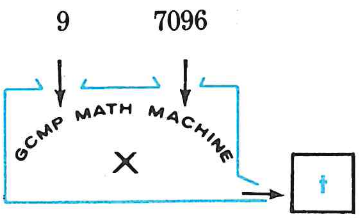








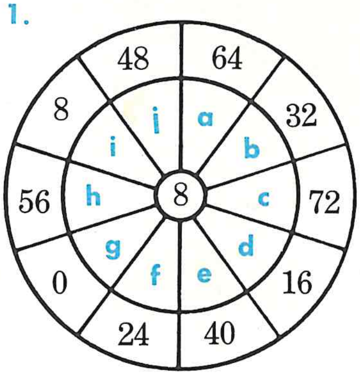




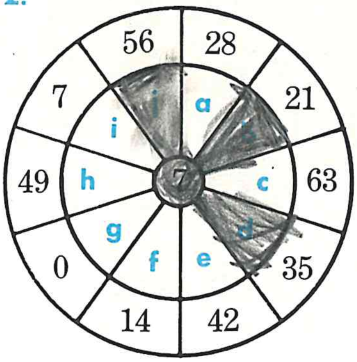
DIVISION OF WHOLE NUMBERS

Complete each multiplication wheel by finding the missing factors.

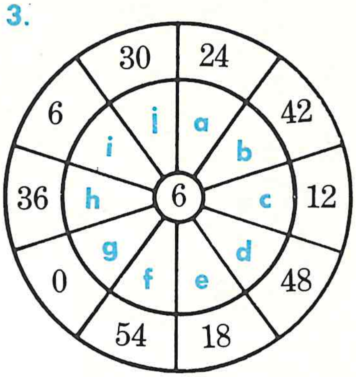
1.



2.



3.



Use the distributive property to complete each sentence.

4. $\underline{\quad ?\quad}\times(5+3)=45+27=\boxed{4}$

5. $\underline{\quad ?\quad}\times(8-2)=56-14=\boxed{8}$

6. $6\times(\underline{\quad ?\quad}+\underline{\quad ?\quad})=54+12=\boxed{9}$

7. $8\times(\underline{\quad ?\quad}-\underline{\quad ?\quad})=48-24=\boxed{10}$

8. $7\times(\underline{\quad ?\quad}+\underline{\quad ?\quad})=35+\underline{\quad ?\quad}=77$

9. $\underline{\quad ?\quad}\times(6+2)=42+14=\boxed{7}$

10. $\underline{\quad ?\quad}\times(4-2)=36-18=\boxed{11}$

11. $4\times(\underline{\quad ?\quad}+\underline{\quad ?\quad})=16+20=\boxed{P}$

12. $5\times(\underline{\quad ?\quad}-\underline{\quad ?\quad})=25-15=\boxed{P}$

13. $9\times(\underline{\quad ?\quad}+\underline{\quad ?\quad})=63+\underline{\quad ?\quad}=135$

Find the missing factors by repeated subtraction.
Check by multiplying.

14. $14 \times n = 42$

$$\begin{array}{rl} 42 & \\ -\ 14 & \checkmark \\ \hline \square\square & \\ -\ 14 & \checkmark \\ \hline \square\square & \\ -\ 14 & \checkmark \\ \hline 0 & \end{array}$$

$14 \times \underline{\quad ?\quad} = 42$

15. $m \times 16 = 48$

$\underline{\quad ?\quad} \times 16 = 48$

16. $125 \times a = 625$

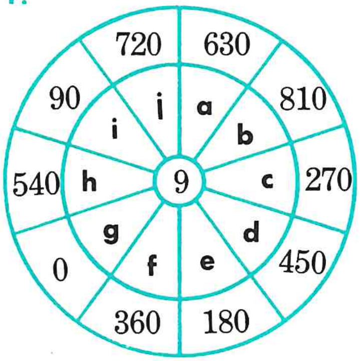
$125 \times \underline{\quad ?\quad} = 625$

17. $b \times 137 = 411$

$\underline{\quad ?\quad} \times 137 = 411$

Complete each multiplication wheel by finding the missing factors.

1.



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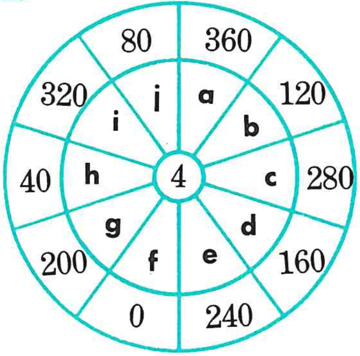

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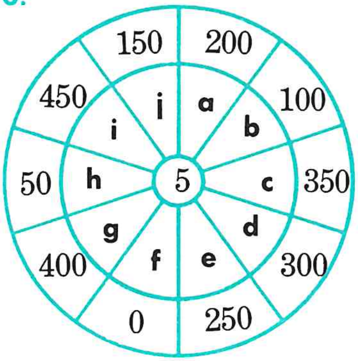


Find the missing factors.

	A	B	C	D
4.	6 × ? = 420	8 × ? = 480	9 × ? = 630	630 ÷ 9 = ?
5.	? × 70 = 210	? × 9 = 270	? × 40 = 280	280 ÷ 4 = ?
6.	? × 60 = 180	8 × ? = 640	? × 4 = 360	360 ÷ 4 = ?
7.	7 × ? = 560	? × 90 = 450	8 × ? = 240	240 ÷ 8 = ?

Use the distributive property to complete each equation.

8. ? ×(60+5)=120+10=☐

9. ? ×(70−3)=560−24=☐

10. 4×(? + ?)=160+20=☐

11. 7×(? + ?)=350+21=☐

12. 8×(? + ?)=40+ ? =288

13. ? ×(30+2)=210+14=☐

14. ? ×(80−4)=320−16=☐

15. 6×(? + ?)=480+12=☐

16. 9×(? + ?)=720+27=☐

17. 7×(? + ?)=490+ ? =504

Copy and complete each example.

1. $$6\;\begin{array}{|r|r} 78 & \\ -30 & 5 \\ \hline 48 & \\ -24 & 4 \\ \hline 24 & \\ -24 & 4 \\ \hline 0 & \square\square \end{array}$$

2. $$6\;\begin{array}{|r|r} 78 & \\ -54 & 9 \\ \hline 24 & \\ -24 & 4 \\ \hline 0 & \square\square \end{array}$$

3. $$6\;\begin{array}{|r|r} 78 & \\ -60 & 1\;0 \\ \hline 18 & \\ -18 & 3 \\ \hline 0 & \square\square \end{array}$$

$6 \times \underline{\ ?\ } = 78$

Find the quotients. Check each problem by multiplication.

	A	B	C	D
4.	$8\,\overline{)\,88}$ $8 \times \underline{\ ?\ } = 88$	$3\,\overline{)\,39}$ $3 \times \underline{\ ?\ } = 39$	$5\,\overline{)\,75}$ $5 \times \underline{\ ?\ } = 75$	$4\,\overline{)\,52}$ $4 \times \underline{\ ?\ } = 52$
5.	$6\,\overline{)\,90}$ $6 \times \underline{\ ?\ } = 90$	$4\,\overline{)\,72}$ $4 \times \underline{\ ?\ } = 72$	$5\,\overline{)\,85}$ $5 \times \underline{\ ?\ } = 85$	$6\,\overline{)\,84}$ $6 \times \underline{\ ?\ } = 84$

Which numbers make each sentence true?

6. $3 \times n < 78$ 0 10 20 30 40	9. $4 \times a < 96$ 10 20 30 40 50	12. $3 \times b < 87$ 10 20 30 40 50
7. $2 \times g < 56$ 0 10 20 30 40	10. $4 \times c < 88$ 10 20 30 40 50	13. $5 \times r < 95$ 10 20 30 40 50
8. $4 \times d < 52$ 0 10 20 30 40	11. $2 \times w < 78$ 10 20 30 40 50	14. $3 \times m < 69$ 10 20 30 40 50

Find the quotients.

1. $3\overline{)69}$ 2. $4\overline{)88}$ 3. $3\overline{)78}$

4. $5\overline{)95}$ 5. $2\overline{)78}$ 6. $4\overline{)96}$

7. $3\overline{)87}$ 8. $6\overline{)90}$ 9. $5\overline{)60}$

Which is the greatest multiple of ten that will make each sentence true?

10. $2 \times c < 86$ 0 10 20 30 40	**11.** $3 \times r < 159$ 20 30 40 50 60	**12.** $3 \times n < 216$ 40 50 60 70 80
13. $8 \times d < 168$ 10 20 30 40 50	**14.** $5 \times a < 205$ 20 30 40 50 60	**15.** $7 \times m < 567$ 50 60 70 80 90
16. $4 \times b < 168$ 20 30 40 50 60	**17.** $6 \times w < 246$ 30 40 50 60 70	**18.** $9 \times v < 729$ 50 60 70 80 90

Find the quotients.

19. $3\overline{)216}$ 20. $7\overline{)567}$ 21. $4\overline{)168}$

22. $5\overline{)205}$ 23. $9\overline{)729}$ 24. $6\overline{)246}$

25. $8\overline{)168}$ 26. $2\overline{)86}$ 27. $7\overline{)497}$

Find the greatest multiple of ten that makes each sentence true.

1. $8 \times \underline{\quad ? \quad} < 176$
2. $5 \times \underline{\quad ? \quad} < 115$
3. $4 \times \underline{\quad ? \quad} < 304$
4. $4 \times \underline{\quad ? \quad} < 356$
5. $7 \times \underline{\quad ? \quad} < 672$
6. $7 \times \underline{\quad ? \quad} < 399$
7. $6 \times \underline{\quad ? \quad} < 258$
8. $9 \times \underline{\quad ? \quad} < 432$
9. $9 \times \underline{\quad ? \quad} < 306$
10. $5 \times \underline{\quad ? \quad} < 340$
11. $6 \times \underline{\quad ? \quad} < 648$
12. $8 \times \underline{\quad ? \quad} < 424$

Find the quotients.

13. $9\overline{)432}$
14. $8\overline{)424}$
15. $5\overline{)340}$
16. $7\overline{)672}$

Find the missing factors.

17. $4 \times \underline{\quad ? \quad} = 356$
18. $\underline{\quad ? \quad} \times 5 = 115$
19. $3 \times \underline{\quad ? \quad} = 225$
20. $5 \times \underline{\quad ? \quad} = 430$
21. $6 \times \underline{\quad ? \quad} = 432$
22. $8 \times \underline{\quad ? \quad} = 176$
23. $7 \times \underline{\quad ? \quad} = 399$
24. $\underline{\quad ? \quad} \times 9 = 306$
25. $8 \times \underline{\quad ? \quad} = 472$
26. $7 \times \underline{\quad ? \quad} = 385$
27. $\underline{\quad ? \quad} \times 6 = 648$
28. $6 \times \underline{\quad ? \quad} = 258$
29. $5 \times \underline{\quad ? \quad} = 285$
30. $9 \times \underline{\quad ? \quad} = 792$
31. $\underline{\quad ? \quad} \times 6 = 216$
32. $4 \times \underline{\quad ? \quad} = 304$
33. $8 \times \underline{\quad ? \quad} = 736$
34. $9 \times \underline{\quad ? \quad} = 567$
35. $\underline{\quad ? \quad} \times 6 = 210$
36. $7 \times \underline{\quad ? \quad} = 266$
37. $5 \times \underline{\quad ? \quad} = 265$

What is the greatest multiple of 100 that will make each sentence true?

1. $3 \times b < 693$ 0 100 200 300 400	**2.** $2 \times c < 844$ 100 200 300 400 500	**3.** $4 \times k < 896$ 0 100 200 300 400
4. $2 \times g < 242$ 0 100 200 300 400	**5.** $3 \times w < 963$ 0 100 200 300 400	**6.** $5 \times v < 555$ 0 100 200 300 400
7. $3 \times m < 339$ 0 100 200 300 400	**8.** $2 \times n < 402$ 0 100 200 300 400	**9.** $3 \times d < 648$ 0 100 200 300 400

Find the quotients.

10. $2\overline{)844}$ **11.** $3\overline{)963}$ **12.** $3\overline{)693}$ **13.** $4\overline{)896}$

Find the missing factors. Try to do these mentally.

14. $\begin{array}{r} \square\square\square \\ \times \quad 4 \\ \hline 4\ 8\ 4 \end{array}$ **15.** $\begin{array}{r} \square\square\square \\ \times \quad 2 \\ \hline 2\ 4\ 2 \end{array}$ **16.** $\begin{array}{r} \square\square\square \\ \times \quad 3 \\ \hline 9\ 0\ 6 \end{array}$ **17.** $\begin{array}{r} \square\square\square \\ \times \quad 2 \\ \hline 4\ 0\ 2 \end{array}$

18. $\begin{array}{r} \square\square\square \\ \times \quad 5 \\ \hline 5\ 5\ 5 \end{array}$ **19.** $\begin{array}{r} \square\square\square \\ \times \quad 3 \\ \hline 3\ 3\ 9 \end{array}$ **20.** $\begin{array}{r} \square\square\square \\ \times \quad 4 \\ \hline 8\ 3\ 6 \end{array}$ **21.** $\begin{array}{r} \square\square\square \\ \times \quad 3 \\ \hline 6\ 4\ 8 \end{array}$

What is the greatest multiple of 100 that will make each sentence true?

1. $4 \times m < 924$ 0 100 200 300 400	**2.** $5 \times n < 620$ 0 100 200 300 400	**3.** $2 \times k < 936$ 100 200 300 400 500
4. $3 \times d < 858$ 0 100 200 300 400	**5.** $5 \times g < 535$ 0 100 200 300 400	**6.** $3 \times a < 741$ 0 100 200 300 400
7. $4 \times w < 548$ 0 100 200 300 400	**8.** $2 \times b < 752$ 0 100 200 300 400	**9.** $6 \times r < 924$ 0 100 200 300 400

Find the quotients.

10. $2\overline{)936}$ **11.** $4\overline{)924}$ **12.** $5\overline{)535}$ **13.** $4\overline{)548}$

Find the missing factors.

14. $3 \times \underline{\;?\;} = 858$

15. $6 \times \underline{\;?\;} = 924$

16. $\underline{\;?\;} \times 4 = 632$

17. $5 \times \underline{\;?\;} = 895$

18. $6 \times \underline{\;?\;} = 774$

19. $\underline{\;?\;} \times 5 = 620$

20. $2 \times \underline{\;?\;} = 752$

21. $6 \times \underline{\;?\;} = 852$

22. $8 \times \underline{\;?\;} = 976$

23. $6 \times \underline{\;?\;} = 654$

24. $3 \times \underline{\;?\;} = 741$

25. $4 \times \underline{\;?\;} = 828$

26. $\underline{\;?\;} \times 7 = 959$

27. $2 \times \underline{\;?\;} = 754$

28. $5 \times \underline{\;?\;} = 865$

29. $3 \times \underline{\;?\;} = 630$

30. $5 \times \underline{\;?\;} = 870$

31. $2 \times \underline{\;?\;} = 600$

32. $4 \times \underline{\;?\;} = 928$

33. $\underline{\;?\;} \times 3 = 942$

34. $7 \times \underline{\;?\;} = 749$

Find the greatest multiple of 1000 that will make each sentence true.

1. $7 \times \underline{\ ?\ } < 7184$

2. $2 \times \underline{\ ?\ } < 4844$

3. $3 \times \underline{\ ?\ } < 9636$

4. $9 \times \underline{\ ?\ } < 9189$

5. $4 \times \underline{\ ?\ } < 9204$

6. $3 \times \underline{\ ?\ } < 9156$

7. $4 \times \underline{\ ?\ } < 8164$

8. $2 \times \underline{\ ?\ } < 6018$

9. $5 \times \underline{\ ?\ } < 1055$

Copy and complete.

10. 4 | 8 1 6 4

− □□□□ (2 1 6 4) | 2 0 0 0

1 6 4

− □□□ | □□

4

− □ | □

0 | □□□□

11. 4 | 9 2 0 4

− □□□□ | □□□□

1 2 0 4

− □□□□ | □□□

4

− □ | □

0 | □□□□

Find the quotients.

12. 2 | 4844

13. 3 | 9156

14. 2 | 6018

Find the missing factors.

1.

$5 \times \underline{\ ?\ } = 1055$

$5\,\overline{)\,1055}$

2.

$3 \times \underline{\ ?\ } = 4275$

$3\,\overline{)\,4275}$

3.

$6 \times \underline{\ ?\ } = 8304$

$6\,\overline{)\,8304}$

4.

$7 \times \underline{\ ?\ } = 1428$

$7\,\overline{)\,1428}$

5.

$\underline{\ ?\ } \times 4 = 7184$

$4\,\overline{)\,7184}$

6.

$9 \times \underline{\ ?\ } = 9189$

$9\,\overline{)\,9189}$

Find the missing factors.

7. $\underline{\ ?\ } \times 4 = 4924$

8. $6 \times \underline{\ ?\ } = 9246$

9. $5 \times \underline{\ ?\ } = 8530$

10. $5 \times \underline{\ ?\ } = 1190$

11. $8 \times \underline{\ ?\ } = 5120$

12. $3 \times \underline{\ ?\ } = 9630$

13. $4 \times \underline{\ ?\ } = 8572$

14. $\underline{\ ?\ } \times 6 = 5466$

15. $7 \times \underline{\ ?\ } = 2142$

16. $9 \times \underline{\ ?\ } = 3006$

17. $2 \times \underline{\ ?\ } = 8928$

18. $3 \times \underline{\ ?\ } = 7269$

19. $7 \times \underline{\ ?\ } = 1274$

20. $\underline{\ ?\ } \times 8 = 4080$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. The three horses on Joey's farm weigh 4815 pounds all together. Each horse weighs the same number of pounds. How much does each horse weigh?
2. Joey's 9 cows gave a total of 5832 quarts of milk last year. Each cow gave the same amount of milk. How many quarts of milk did each cow give?
3. Joey's sister gathered 2320 eggs last year from 8 chickens. Each chicken laid the same number of eggs. How many eggs did each chicken lay?
4. Joey's sister planted 138 tomato plants. How many rows of tomato plants are there if she planted 6 in each row?
5. Joey's mother canned 377 jars of peaches, 268 jars of pears, and 349 jars of plums last week. She canned the same number of jars each day. How many jars of fruit did she can each day?
6. Joey's mother used 1902 peaches to make preserves. She used 6 peaches for each jar of preserves. How many jars of preserves did she make?
7. Last fall, Joey and his father gathered 738 bushels of apples from 9 trees. They picked the same number of bushels from each tree. How many bushels of apples did they pick from each tree?
8. Nine years ago, Joey's father began to save money for a new barn. He saved the same amount of money each year. He now has $8955. How much did he save each year?

Copy and complete each sentence, writing $<$, $>$, or $=$ in place of the $\bigcirc$.

1. $436 \div 4 \bigcirc 109$

2. $305 \times 8 \bigcirc 2616 \div 4$

3. $375 + 89 + 64 \bigcirc 176 \times 4$

4. $248 \times 5 \bigcirc 2480 \div 2$

5. $9000 - 726 \bigcirc 856 \times 9$

6. $1407 + 386 + 5021 \bigcirc 603 \times 7$

7. $7056 \div 8 \bigcirc 4605 \div 5$

8. $375 \times 6 \bigcirc 5051 - 2254$

Copy and complete each sentence, writing $+$, $-$, $\times$, or $\div$ in place of the $\triangle$ and $\triangledown$.

9. $48 \triangle 2 \times 15 \triangledown 9$

10. $13 \triangle 13 = 78 \triangledown 3$

11. $76 \triangle 9 = 70 \triangledown 3$

12. $64 \triangle 4 = 32 \triangledown 2$

13. $36 \triangle 9 = 2 \triangledown 2$

14. $483 \triangle 1 = 241 \triangledown 242$

Copy and complete each sentence, writing a numeral in place of the $\square$.

8040
748
7092

15. $8040 - 748 = 7000 + \square$

16. $46 + 375 + 842 = \square + 1$

17. $3828 \div 6 = \square \times 2$

18. $6 \times \square = 3000 + 470 + 4$

19. $\square \times 5 = 7320 \div 2$

20. $408 \times 7 = 4824 - \square$

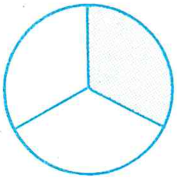
21. $\square \times \square = \square + \square$

22. $8055 \div 9 = \square \times 5$

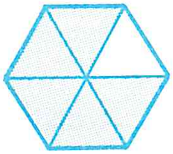
REVIEW

Write the fraction that tells what part of each region is shaded.

1.



2.



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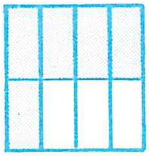

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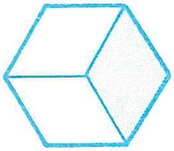
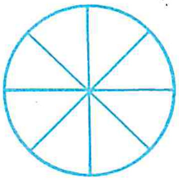
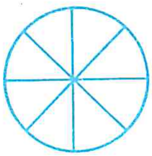


5.

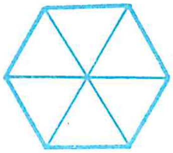


Copy and complete each equation.

6. $\frac{2}{8} + \frac{5}{8} =$?



7. $\frac{1}{2} + \frac{1}{6} =$?



Copy and solve each equation.

8. $\frac{5}{8} + \frac{3}{8} =$?
9. $\frac{2}{6} + \frac{0}{6} =$?
10. $\frac{3}{4} - \frac{1}{8} =$?
11. $\frac{1}{3} + \frac{3}{6} =$?
12. $\frac{1}{2} - \frac{2}{8} =$?
13. $\frac{4}{6} + \frac{1}{3} =$?

Copy and complete each sentence, writing <, >, or = in place of the ○.

14. 27 × 6 ○ 22 × 8
15. 14 × 16 ○ 10 × 22
16. 8 × (20 + 3) ○ 23 × 8
17. 66 × 34 ○ 87 × 50
18. 98 × 37 ○ 45 × (80 + 2)
19. 136 ÷ 4 ○ 210 ÷ 5
20. 348 ÷ 6 ○ 504 ÷ 8
21. 756 ÷ 7 ○ 420 ÷ 4
22. 9544 ÷ 8 ○ 8337 ÷ 7
23. 4940 ÷ 4 ○ 7410 ÷ 6

Copy the problems and write the correct digit in place of each ☐.

1.
$\boxed{2}\boxed{7}\boxed{9}$
$+\ 1_5 4_5 9$
428

2.
$37_8 5$
$+\ \boxed{2}\boxed{7}$
406

3.
$\boxed{6}\boxed{3}$
$+\ 98_9 7$
1050

4.
$\boxed{5}\boxed{8}\boxed{0}\boxed{8}$
$+\ 3007$
9815

5.
$\boxed{7}\boxed{4}\boxed{3}$
$-\ 258$
437

6.
$\boxed{8}\boxed{4}\boxed{3}$
$-\ 306$
532

7.
$\boxed{1}\boxed{2}\boxed{4}\boxed{8}$
$-\ 789$
356

8.
$\boxed{1}\boxed{2}\boxed{3}\boxed{6}\boxed{8}$
$-\ 4372$
8079

9.
$\boxed{8}\boxed{6}\boxed{0}$
$\times\ 4$
528

10.
376
$\times\ 9$
$\boxed{3}\boxed{8}\boxed{4}\boxed{3}$

11.
420
$\times\ 8$
$\boxed{19}\boxed{3}\boxed{6}\boxed{7}$

12.
307
$\times\ \boxed{}$
921

13. 8 | 288
$-\ \boxed{}\boxed{}\boxed{}$ | $\boxed{}\boxed{}$
$\boxed{}\boxed{}$
$-\ \boxed{}\boxed{}$ | $\boxed{}$
0 | $\boxed{}\boxed{}$

14. 7 | 651
$-\ \boxed{1}\boxed{2}\boxed{8}$ | $\boxed{4}\boxed{7}$
$\boxed{7}\boxed{4}$
$-\ \boxed{10}\boxed{4}$ | $\boxed{}$
0 | $\boxed{}\boxed{}$

15. 5 | 600
$-\ \boxed{}\boxed{}\boxed{}$ | $\boxed{}\boxed{}\boxed{}$
$\boxed{}\boxed{}\boxed{}$
$-\ \boxed{}\boxed{}\boxed{}$ | $\boxed{}\boxed{}$
0 | $\boxed{}\boxed{}\boxed{}$

Copy and complete each addition chart.

16.

2000	300	?	9	2399
?	100	60	?	4166
3000	?	?	5	?
?	600	?	?	9850

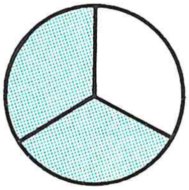
17.

4000	?	70	5	4175
?	300	60	8	?
2000	500	90	8	2598
?	?	?	?	8141

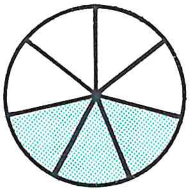
FRACTIONAL NUMBERS: THE NUMBER LINE

What part of each region is shaded? What part is not shaded? Write the correct fraction for each part.

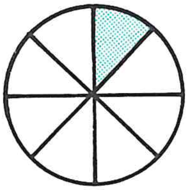
1.



2.



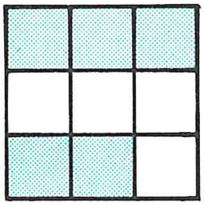
3.



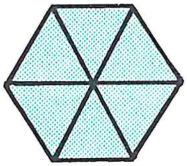
_6?8_ shaded

_4?2_ not shaded

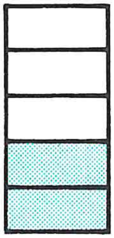
4.



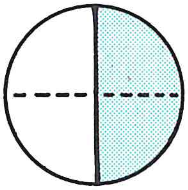
5.



6.

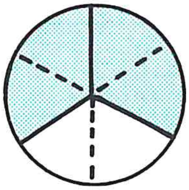


Write two fractions for the shaded part of each region:



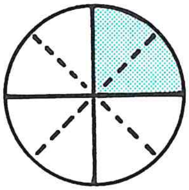
$\frac{1}{2} = \frac{2}{4}$

7.



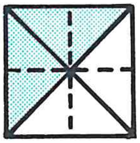
$\frac{2}{3} = \frac{?}{?}$

8.

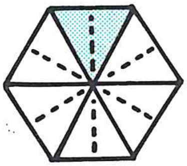


$\frac{1}{4} = \frac{?}{?}$

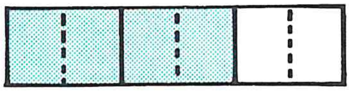
9.



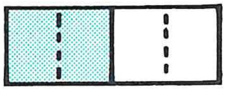
10.



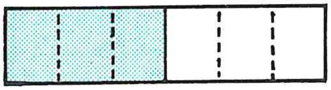
11.



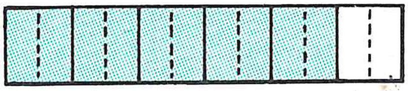
12.



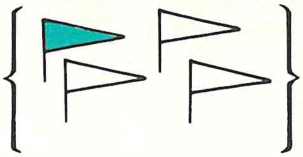
13.

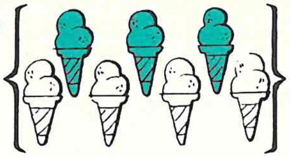


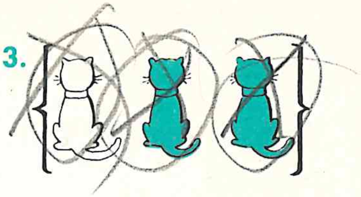
14.



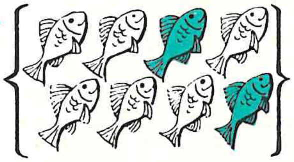
What part of each set is shaded? What part is not shaded? Write the correct fraction for each part.

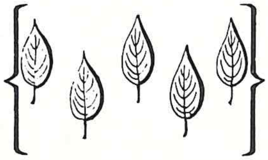
1.


2.


3.


___?___ shaded
___?___ not shaded

4.


5.


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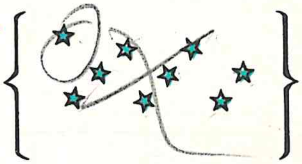
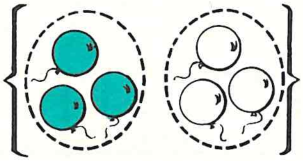
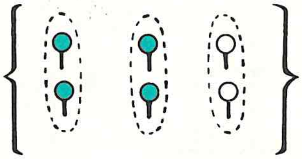
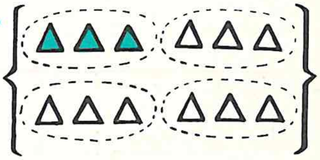


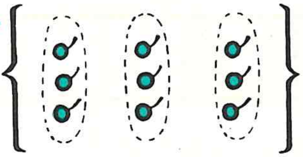
Write two fractions for the shaded part of each set.

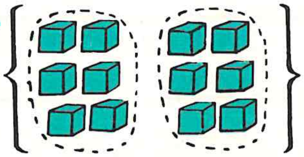
7.


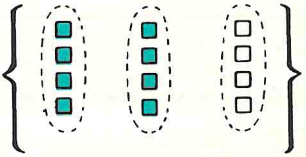
8.


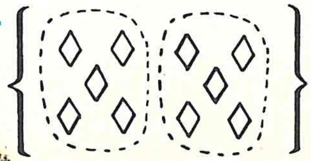
9.


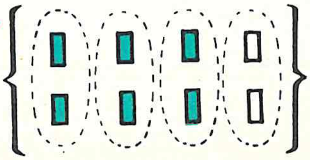
$\frac{1}{2} = \frac{?}{?}$

10.


11.


12.


13.


14.


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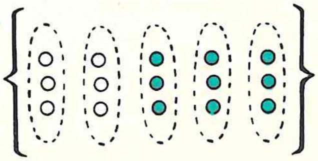
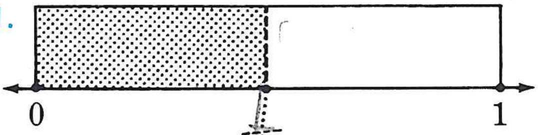


We can write fractions for parts of regions and parts of sets. Let's picture long regions sitting on the part of the number line between 0 and 1.

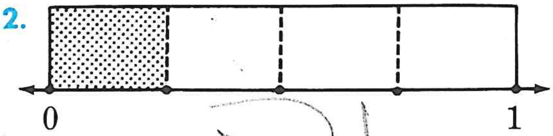
Write the correct fraction for the shaded part of each region.

1.



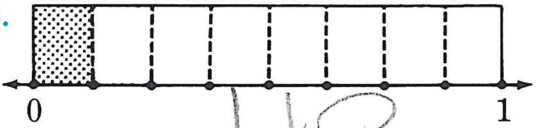
$\frac{1}{2}$

2.



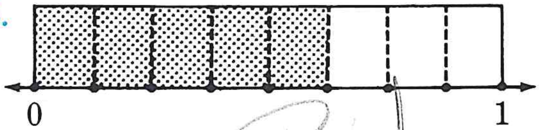
81

3.



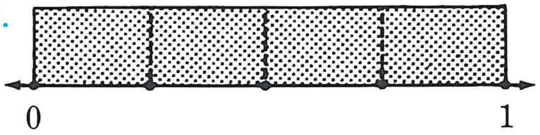
43

4.

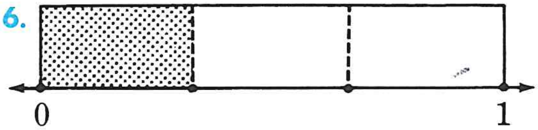


84

5.



6.



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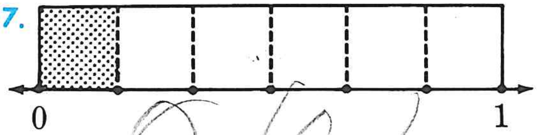
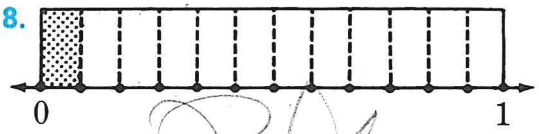


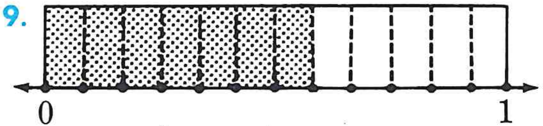
06

8.



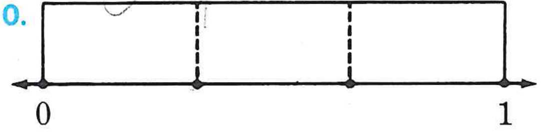
80

9.



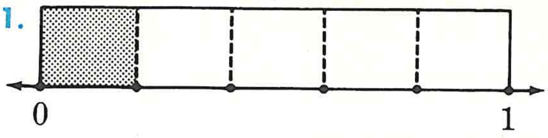
4

10.

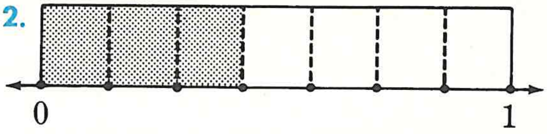


Write the correct fractions.

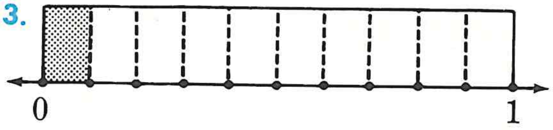
1.



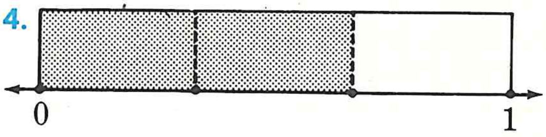
2.



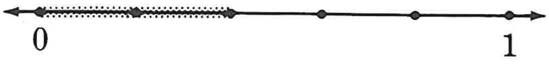
3.



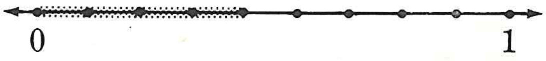
4.



5.

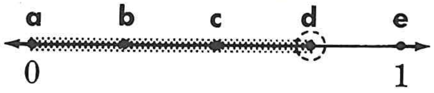


6.

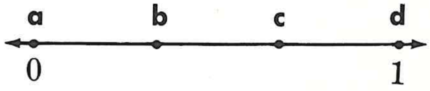


Which is the correct point?

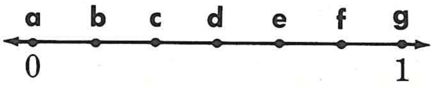
7. $\frac{3}{4}$



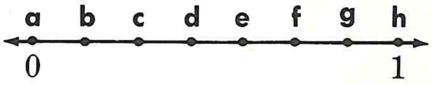
10. $\frac{1}{3}$



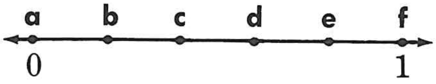
8. $\frac{0}{6}$



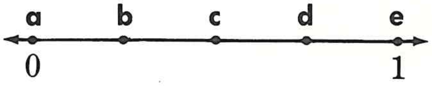
11. $\frac{7}{7}$



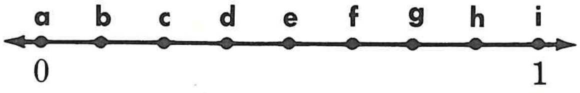
9. $\frac{2}{5}$



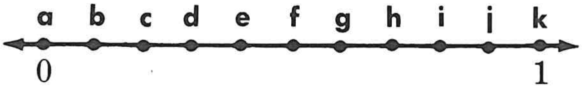
12. $\frac{1}{4}$



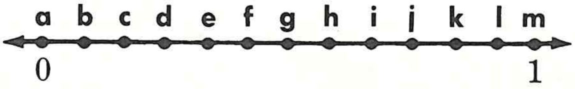
13. $\frac{2}{8}$



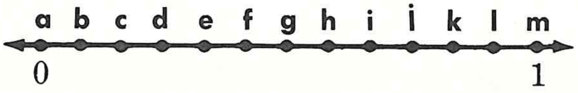
14. $\frac{4}{10}$



15. $\frac{3}{12}$

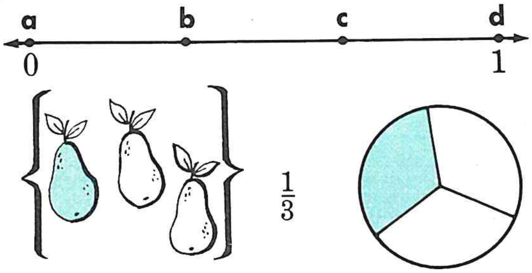


16. $\frac{5}{12}$



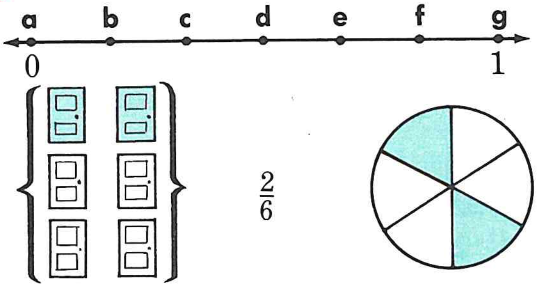
Which is the correct point on the number line for each fraction?

1.



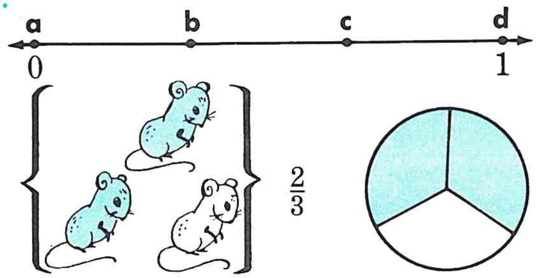
$\frac{1}{3}$

2.



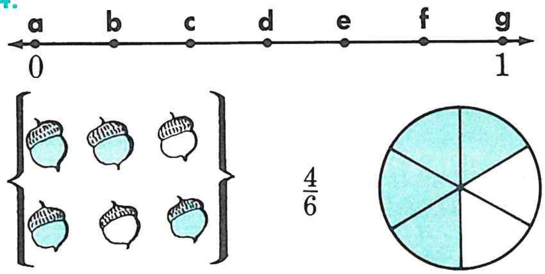
$\frac{2}{6}$

3.



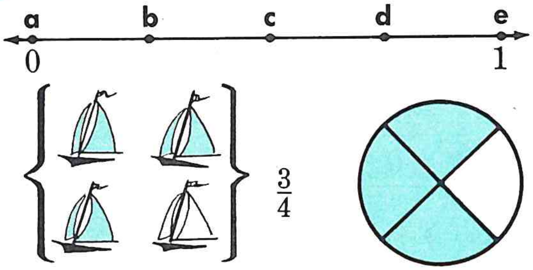
$\frac{2}{3}$

4.



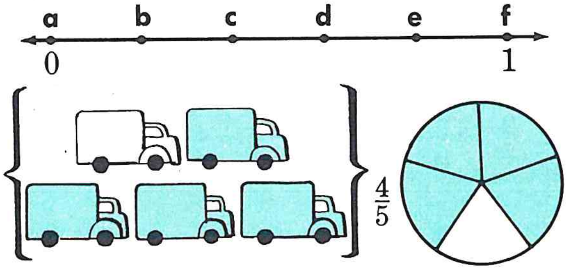
$\frac{4}{6}$

5.



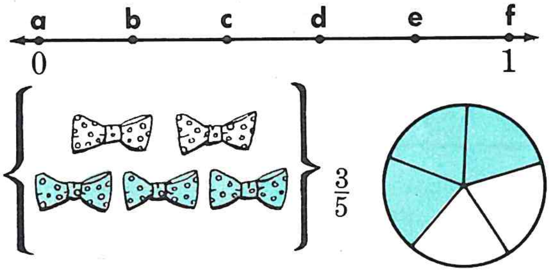
$\frac{3}{4}$

6.



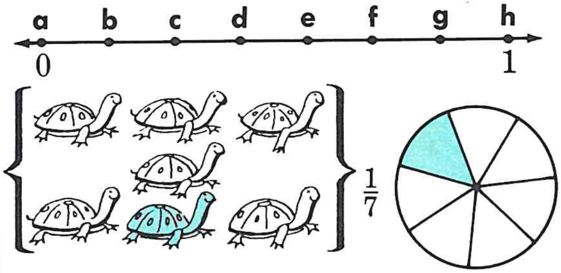
$\frac{4}{5}$

7.



$\frac{3}{5}$

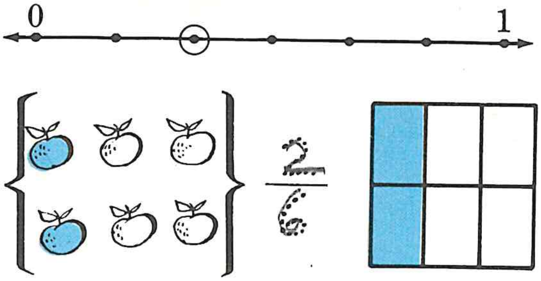
8.



$\frac{1}{7}$

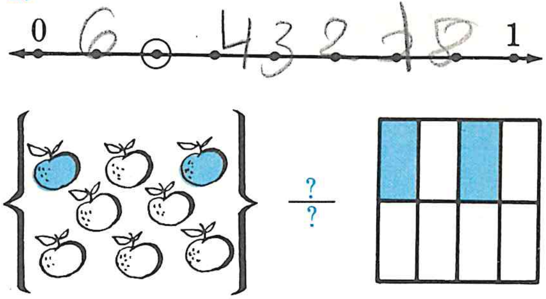
Write the correct fraction for each point that is circled on the number line. The shaded parts of the picture should help you.

1.



$\frac{2}{6}$

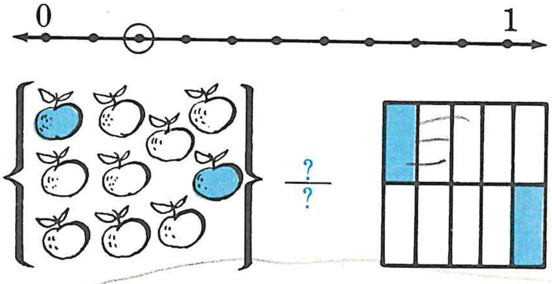
2.



6 4 3 2 7 8

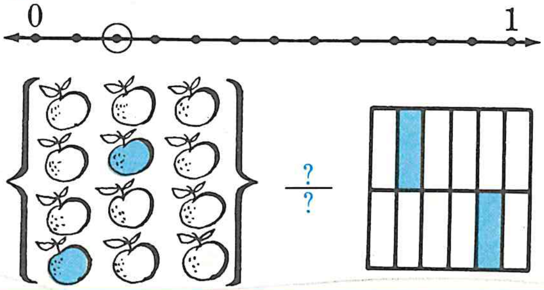
$\frac{?}{?}$

3.



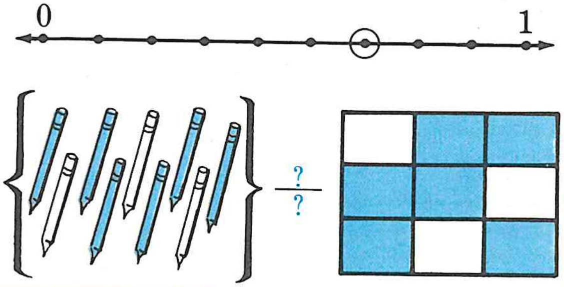
$\frac{?}{?}$

4.



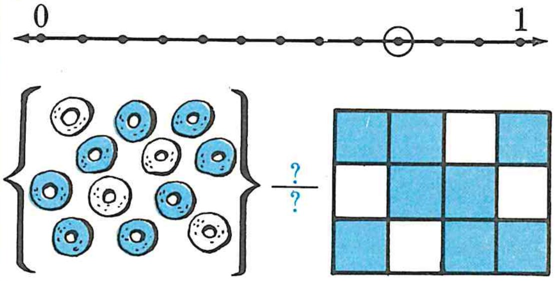
$\frac{?}{?}$

5.



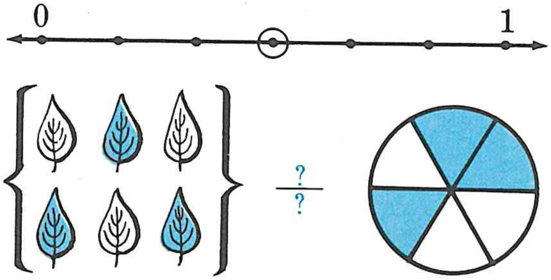
$\frac{?}{?}$

6.



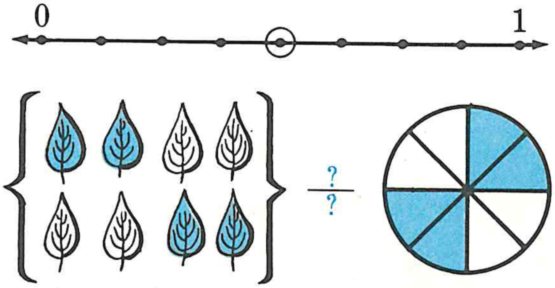
$\frac{?}{?}$

7.



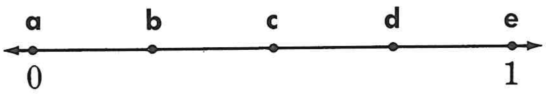
$\frac{?}{?}$

8.

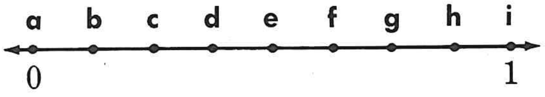


$\frac{?}{?}$

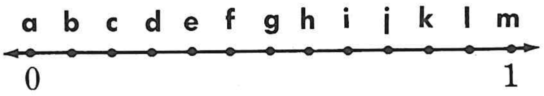
The number line shows the meaning of each fractional number.
What is the letter for the first fraction?
What is the letter for the second fraction?
Copy and complete each sentence, writing >, <, or = in place of the ○.



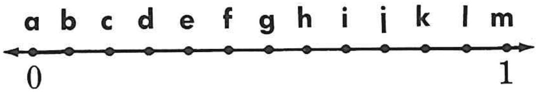
1. $\frac{1}{2} \bigcirc \frac{2}{4}$



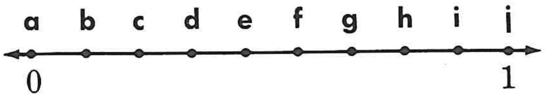
2. $\frac{2}{4} \bigcirc \frac{3}{8}$



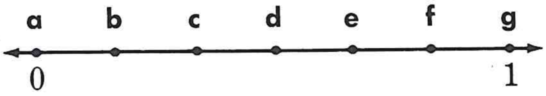
3. $\frac{1}{3} \bigcirc \frac{4}{12}$



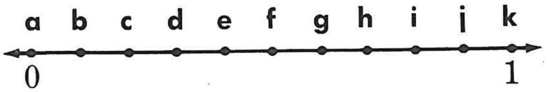
4. $\frac{2}{6} \bigcirc \frac{4}{12}$



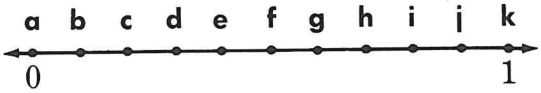
5. $\frac{2}{3} \bigcirc \frac{6}{9}$



6. $\frac{1}{3} \bigcirc \frac{4}{6}$



7. $\frac{1}{5} \bigcirc \frac{3}{10}$



8. $\frac{2}{5} \bigcirc \frac{4}{10}$

Copy and complete each equation to rename the fractional number.

9. $\frac{1}{2} = \frac{2}{?} = \frac{?}{8}$

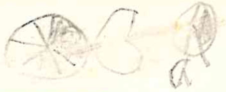
10. $\frac{2}{3} = \frac{?}{6} = \frac{6}{?}$

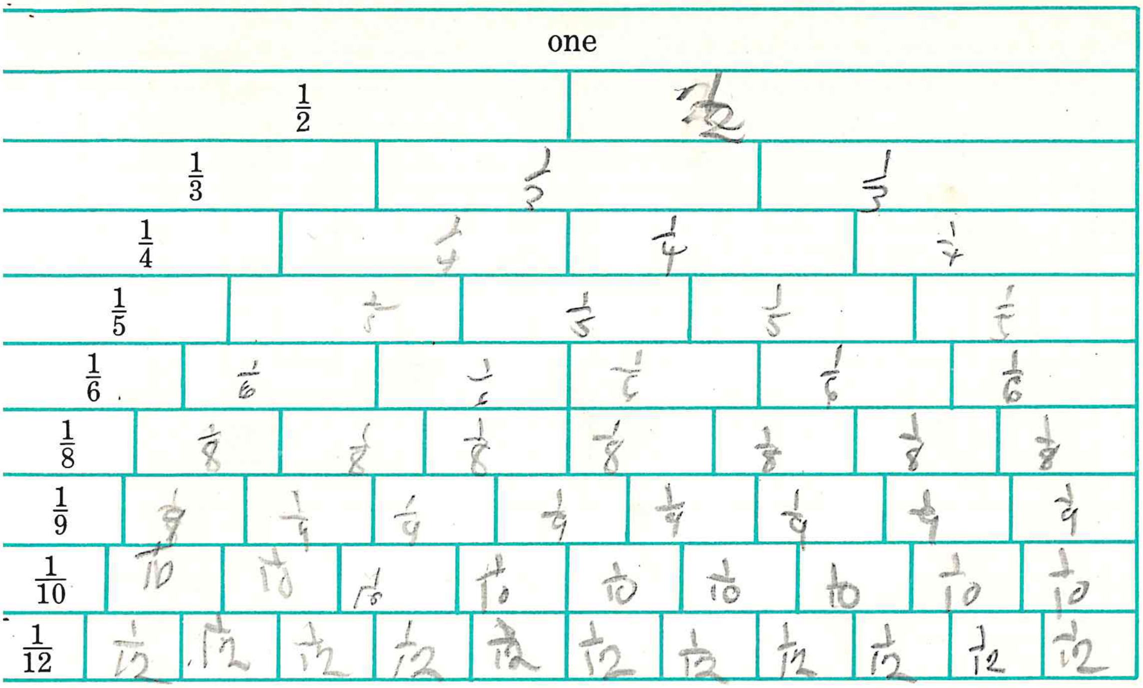
11. $\frac{1}{5} = \frac{?}{10}$

12. $\frac{1}{3} = \frac{2}{?} = \frac{?}{12}$

13. $\frac{1}{4} = \frac{?}{8} = \frac{3}{?}$

14. $\frac{2}{5} = \frac{4}{?}$





Copy and complete each sentence, writing >, <, or = in place of the ○.

1. $\frac{1}{2}$ ○ $\frac{1}{8}$
2. $\frac{1}{10}$ ○ $\frac{1}{3}$
3. $\frac{1}{6}$ ○ $\frac{1}{5}$
4. $\frac{1}{3}$ ○ $\frac{1}{6}$
5. $\frac{2}{4}$ ○ $\frac{1}{2}$
6. $\frac{3}{6}$ ○ $\frac{5}{12}$
7. $\frac{1}{8}$ ○ $\frac{1}{9}$
8. $\frac{3}{9}$ ○ $\frac{1}{3}$
9. $\frac{1}{9}$ ○ $\frac{2}{10}$
10. $\frac{5}{6}$ ○ $\frac{11}{12}$
11. $\frac{5}{10}$ ○ $\frac{3}{4}$
12. $\frac{4}{5}$ ○ $\frac{5}{8}$
13. $\frac{7}{12}$ ○ $\frac{1}{2}$
14. $\frac{6}{8}$ ○ $\frac{3}{4}$
15. $\frac{3}{9}$ ○ $\frac{1}{3}$

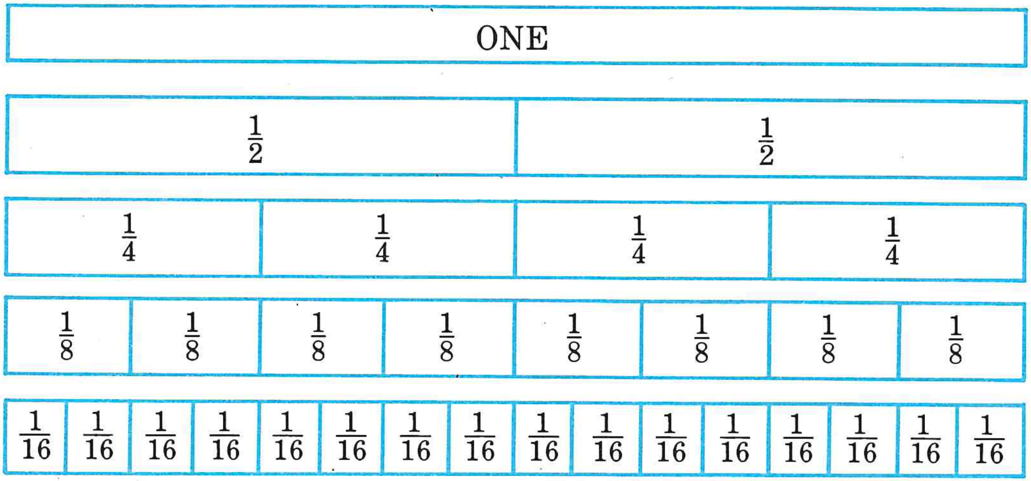
Rewrite the fractions to show the order of the numbers from least to greatest.

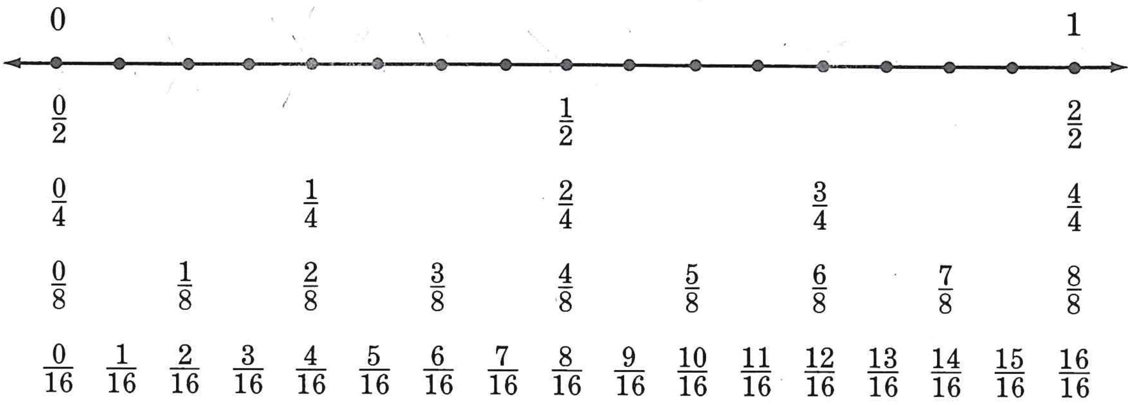
6. $\frac{1}{2}$ $\frac{1}{12}$ $\frac{1}{8}$ $\frac{1}{6}$ $\frac{1}{4}$ $\frac{1}{10}$ $\frac{1}{5}$ $\frac{1}{9}$

Rewrite the fractions to show the order of the numbers from greatest to least.

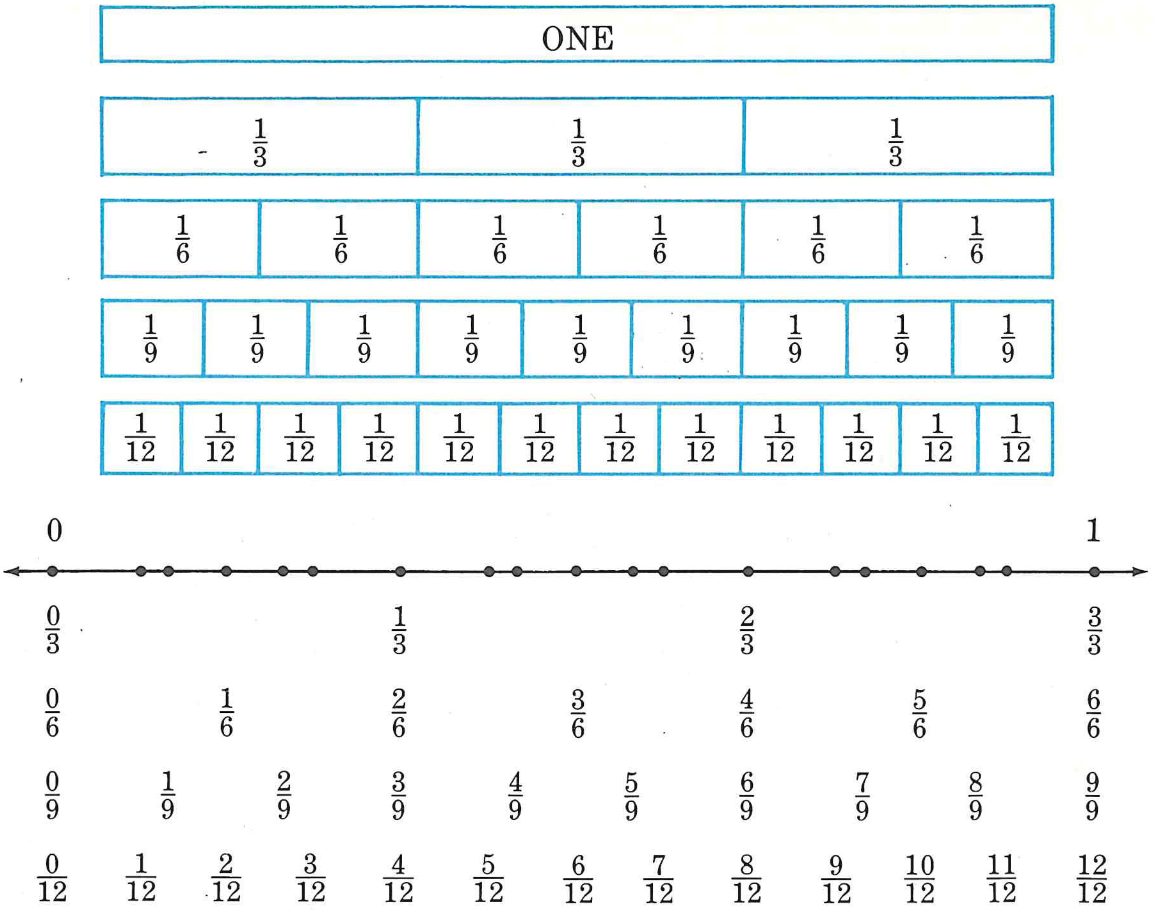
7. $\frac{5}{8}$ $\frac{0}{8}$ $\frac{7}{8}$

18. $\frac{2}{3}$ $\frac{3}{4}$ $\frac{4}{5}$





1. Write two fractions for $\frac{1}{4}$.
2. Do you see other names for the point marked $\frac{5}{16}$? If so, write one.
3. Do you see other names for the point marked $\frac{2}{16}$? If so, write one.
4. Write another fraction for $\frac{14}{16}$.
5. Write three fractions for $\frac{4}{8}$.
6. Write two other fractions for $\frac{6}{8}$.
7. Write another fraction for $\frac{6}{16}$.



1. Write four fractions for zero.

2 Write four fractions for one.

3. Write three fractions for $\frac{1}{3}$.

4. Do you see other names for the point marked $\frac{3}{12}$? If so, write one.

5. Do you see other names for the point marked $\frac{11}{12}$? If so, write one.

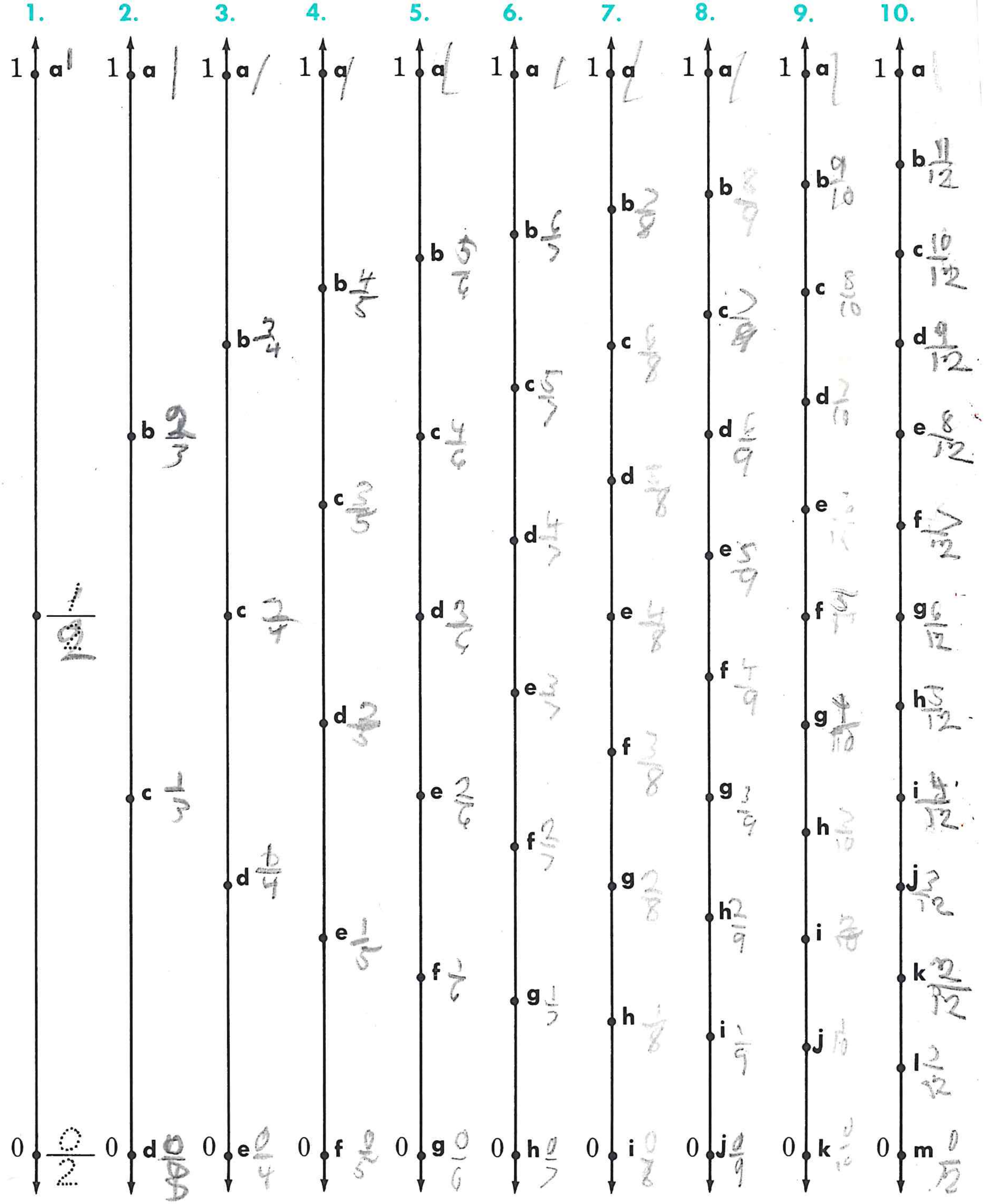
6. Write another fraction for $\frac{10}{12}$.

7. Write another fraction for $\frac{1}{6}$.

8. Write three fractions for $\frac{3}{9}$.

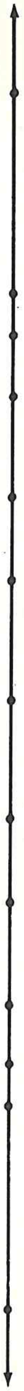
9. Write three fractions for $\frac{2}{3}$.

What fraction best describes the point?



1. 1 a 1, 1/2, 0 0/2
2. 1 a 1, b 2/3, c 1/3, 0 d 0/3
3. 1 a 1, b 3/4, c 2/4, d 1/4, 0 e 0/4
4. 1 a 1, b 4/5, c 3/5, d 2/5, e 1/5, 0 f 0/5
5. 1 a 1, b 5/6, c 4/6, d 3/6, e 2/6, f 1/6, 0 g 0/6
6. 1 a 1, b 6/7, c 5/7, d 4/7, e 3/7, f 2/7, g 1/7, 0 h 0/7
7. 1 a 1, b 7/8, c 6/8, d 5/8, e 4/8, f 3/8, g 2/8, h 1/8, 0 i 0/8
8. 1 a 1, b 8/9, c 7/9, d 6/9, e 5/9, f 4/9, g 3/9, h 2/9, i 1/9, 0 j 0/9
9. 1 a 1, b 9/10, c 8/10, d 7/10, e 6/10, f 5/10, g 4/10, h 3/10, i 2/10, j 1/10, 0 k 0/10
10. 1 a 1, b 11/12, c 10/12, d 9/12, e 8/12, f 7/12, g 6/12, h 5/12, i 4/12, j 3/12, k 2/12, l 1/12, 0 m 0/12

Copy and complete the fractions for each point on the number line.



1. $\frac{?}{10} = \frac{?}{5}$

$1 = \frac{1}{2} = \frac{1}{3} = \frac{1}{4} = \frac{1}{6} = \frac{1}{7} = \frac{1}{8} = \frac{1}{9} = \frac{1}{12}$

2. $\frac{5}{6} = \frac{10}{12}$

3. $\frac{?}{10} = \frac{4}{5}$

4. $\frac{3}{4} = \frac{6}{8} = \frac{12}{12}$

5. $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$

6. $\frac{?}{10} = \frac{3}{5}$

7. $\frac{1}{2} = \frac{?}{6} = \frac{?}{8} = \frac{?}{10} = \frac{?}{12}$

8. $\frac{?}{10} = \frac{2}{5}$

9. $\frac{1}{3} = \frac{?}{6} = \frac{?}{9} = \frac{?}{12}$

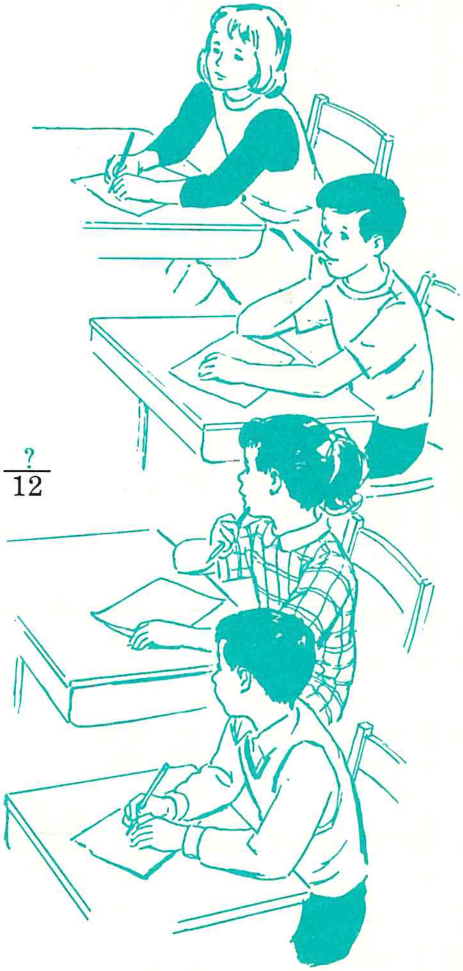
10. $\frac{1}{4} = \frac{?}{8} = \frac{?}{12}$

1. $\frac{?}{10} = \frac{1}{5}$

12. $\frac{1}{6} = \frac{?}{12}$

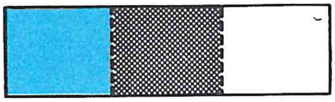
3. $\frac{?}{10} = \frac{?}{5}$

$0 = \frac{?}{2} = \frac{?}{3} = \frac{?}{4} = \frac{?}{6} = \frac{?}{7} = \frac{?}{8} = \frac{?}{9} = \frac{?}{12}$

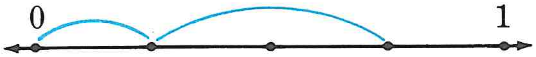


ADDITION AND SUBTRACTION OF FRACTIONAL NUMBERS

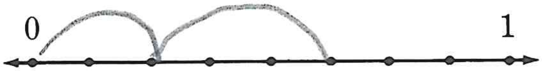
Find the sums. Looking at the number lines may help you.



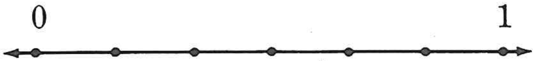
1. $\frac{1}{3} + \frac{1}{3} =$? $\frac{2}{3}$



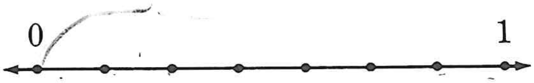
2. $\frac{1}{4} + \frac{2}{4} =$? $\frac{3}{4}$



3. $\frac{4}{8} + \frac{2}{8} =$? $\frac{6}{8}$

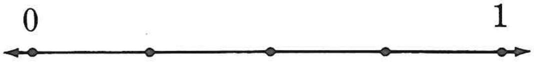


4. $\frac{1}{6} + \frac{4}{6} =$? $\frac{5}{6}$

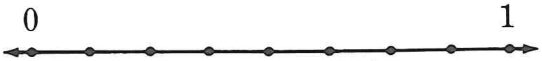


5. $\frac{5}{7} + \frac{2}{7} =$? $\frac{7}{7}$

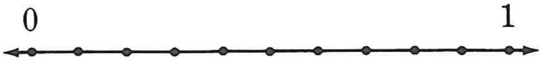
6. $\frac{3}{5} + \frac{0}{5} =$? $\frac{3}{5}$



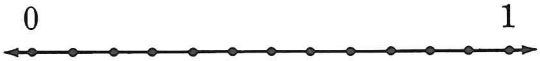
7. $\frac{0}{4} + \frac{2}{4} =$? $\frac{2}{4}$



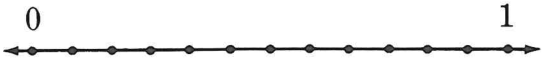
8. $\frac{3}{8} + \frac{3}{8} =$? $\frac{6}{8}$



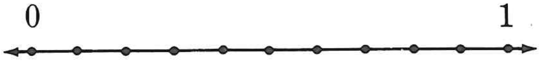
9. $\frac{3}{10} + \frac{1}{10} =$? $\frac{4}{10}$



10. $\frac{5}{12} + \frac{6}{12} =$? $\frac{11}{12}$

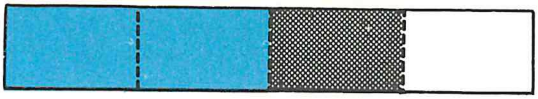


11. $\frac{1}{12} + \frac{4}{12} =$? $\frac{5}{12}$



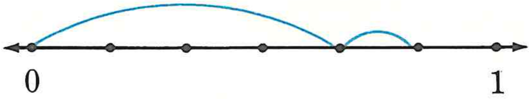
12. $\frac{5}{10} + \frac{5}{10} =$? $\frac{10}{10}$

Rename the numbers to find the sum. Copy and solve the equations.



1. $\frac{1}{2} + \frac{1}{4} = n$

$\frac{2}{4} + \frac{1}{4} =$?



2. $\frac{2}{3} + \frac{1}{6} = a$ 3/9

$\frac{?}{6} + \frac{1}{6} =$?

3. $\frac{1}{2} + \frac{1}{6} = b$

? $+ \frac{1}{6} =$?

4. $\frac{1}{8} + \frac{1}{4} = d$

$\frac{1}{8} +$? $=$?

5. $\frac{1}{2} + \frac{1}{8} = k$

? $+ \frac{1}{8} =$?

6. $\frac{4}{8} + \frac{1}{2} = r$

$\frac{4}{8} +$? $=$?

7. $\frac{1}{5} + \frac{1}{10} = n$

? $+ \frac{1}{10} =$?

8. $\frac{1}{4} + \frac{1}{12} = m$

? $+ \frac{1}{12} =$?

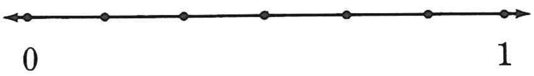
9. $\left(\frac{1}{8} + \frac{1}{8}\right) + \frac{1}{4} = p$

$\left(\frac{1}{8} + \frac{1}{8}\right) +$? $=$?

10. $\frac{2}{6} + \left(\frac{1}{3} + \frac{1}{3}\right) = s$

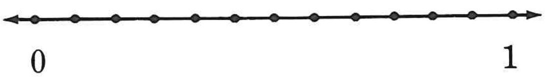
$\frac{2}{6} + ($? $+$? $) =$?

Rename the numbers to find the sum. Copy and solve the equations.



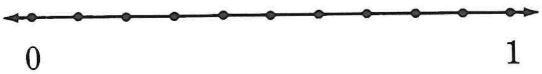
1. $\frac{1}{2} + \frac{1}{3} = n$

? + ? = ?



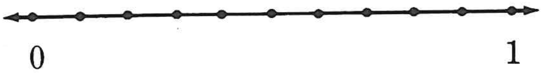
2. $\frac{1}{4} + \frac{2}{3} = g$

? + ? = ?



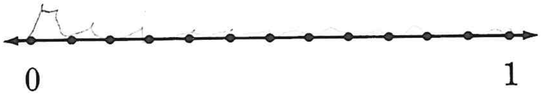
3. $\frac{1}{2} + \frac{1}{5} = r$

? + ? = ?



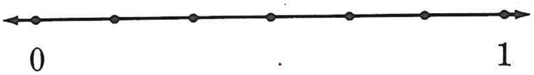
4. $\frac{1}{2} + \frac{4}{10} = h$

? + ? = ?



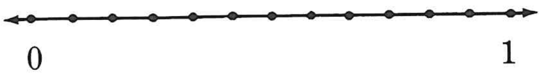
5. $\frac{1}{3} + \frac{1}{12} = a$

$\frac{1}{3} + \frac{1}{12} = \frac{1}{15}$



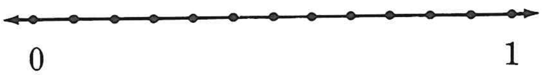
6. $\frac{2}{3} + \frac{1}{6} = b$

? + ? = ?



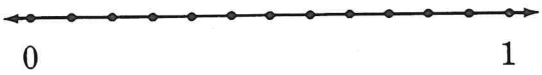
7. $\frac{1}{4} + \frac{1}{6} = b$

$\frac{1}{4} + \frac{1}{6} = \frac{2}{10}$



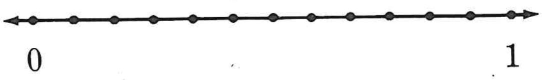
8. $\frac{3}{4} + \frac{1}{6} = m$

? + ? = ?



9. $\frac{3}{4} + \left(\frac{1}{6} + \frac{1}{12}\right) = f$

? + ? = ?



10. $\left(\frac{3}{4} + \frac{1}{6}\right) + \frac{1}{12} = t$

? + ? = ?

For each story problem, write an equation and solve it. Then write a sentence to answer the question.

1. Mr. Strong is a painter. On his last job, he spent four-sevenths of a week painting a house and one-seventh of a week painting the garage. What part of a week did Mr. Strong spend on this job?

2. Mr. Rose is a gardener. Yesterday he mowed one-third of Mrs. King's yard before lunch and six-ninths of her yard after lunch. What part of Mrs. King's yard did Mr. Rose mow yesterday?

3. Mr. Karl is a grocer. His first customer this morning bought some apples for one-half of a dollar and some cat food for two-fifths of a dollar. What part of a dollar did Mr. Karl charge for this sale?

4. Mr. Dover is a mechanic. On one car he used one-fourth of a quart of grease on the wheels and two-thirds of a quart of grease on the rest of the car. What part of a quart did he use on this car?

5. Mr. Jennings is an airline pilot. It takes him one-third of an hour to fly from Lake City to Springfield, one-fourth of an hour to fly from Springfield to Jonesville, and one-sixth of an hour to fly from Jonesville to Kerrtown. How long does it take him to fly the total distance?

6. Mr. Kling is a baker. It takes him one-sixth of an hour to mix a batch of cupcakes, one-half of an hour to bake them, and one-fourth of an hour to ice them. How long does it take him in all to make a batch of cupcakes?

opy and complete each addition chart.

$\frac{1}{2}$	$\frac{1}{5}$	? $\frac{1}{7}$
$\frac{1}{5}$	$\frac{1}{10}$	? $\frac{1}{15}$
? $\frac{1}{7}$	? $\frac{1}{15}$	? $\frac{1}{22}$

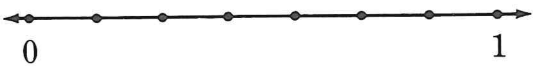
8.

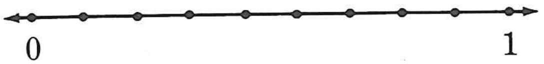
$\frac{1}{2}$	$\frac{1}{8}$	?
$\frac{1}{4}$	$\frac{0}{2}$	?
?	?	?

9.

$\frac{1}{6}$	$\frac{1}{4}$	?
$\frac{1}{4}$	$\frac{1}{6}$	?
?	?	?

Find the missing addends. Copy and complete the equations.



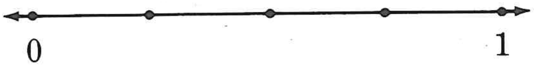


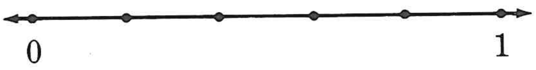
1. $\frac{3\,?}{7\,?} + \frac{1}{7} = \frac{4}{7}$

$\frac{4}{7} - \frac{1}{7} = \frac{3\,?}{7\,?}$

2. $\frac{3}{9} + \frac{4\,?}{9\,?} = \frac{7}{9}$

$\frac{7}{9} - \frac{3}{9} = \frac{4\,?}{9\,?}$





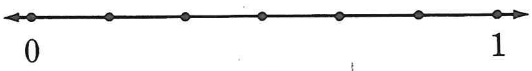
3. $\frac{?\,1}{?\,4} + \frac{2}{4} = \frac{3}{4}$

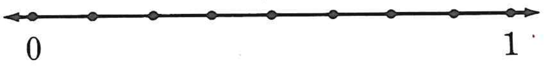
$\frac{3}{4} - \frac{2}{4} = \frac{1\,?}{4\,?}$

4. $\frac{2}{5} + \frac{3\,?}{5\,?} = \frac{5}{5}$

$\frac{5}{5} - \frac{2}{5} = \frac{3\,?}{5\,?}$

Rename and subtract. Copy and complete the equations.



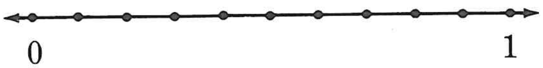


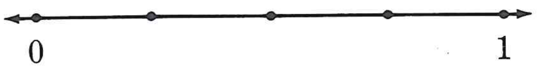
5. $\frac{5}{6} - \frac{1}{3} = g\ \frac{4}{5}$

$\frac{5}{6} - \underline{\ ?\ } = \underline{\ ?\ }$

6. $\frac{3}{4} - \frac{1}{8} = r$

$\underline{\ ?\ } - \frac{1}{8} = \underline{\ ?\ }$



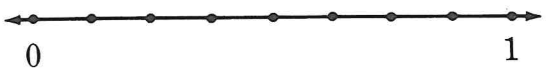


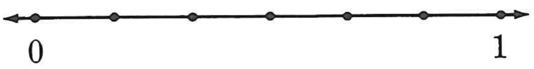
7. $\frac{4}{10} - \frac{1}{5} = k$

$\frac{4}{10} - \underline{\ ?\ } = \underline{\ ?\ }$

8. $\frac{1}{2} - \frac{1}{4} = z$

$\underline{\ ?\ } - \frac{1}{4} = \underline{\ ?\ }$





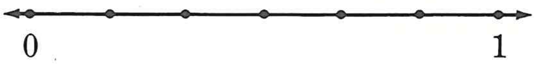
9. $\frac{3}{8} - \frac{1}{4} = p$

$\frac{3}{8} - \underline{\ ?\ } = \underline{\ ?\ }$

10. $\frac{2}{3} - \frac{2}{6} = m$

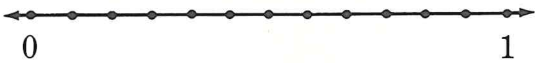
$\underline{\ ?\ } - \frac{2}{6} = \underline{\ ?\ }$

Rename the numbers to find the difference. Copy and solve the equations.



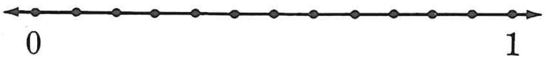
1. $\frac{1}{2} - \frac{1}{3} = r$

$\frac{?}{6} - \frac{?}{6} = \underline{\ ?\ }$



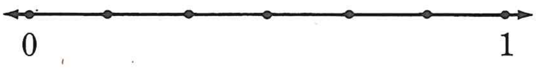
2. $\frac{5}{6} - \frac{1}{4} = m$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



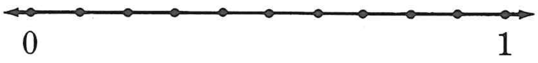
3. $\frac{3}{4} - \frac{1}{3} = b$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



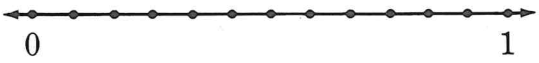
4. $\frac{2}{3} - \frac{1}{2} = c$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



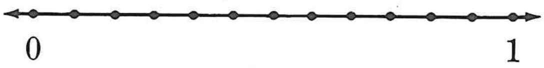
5. $\frac{1}{2} - \frac{1}{5} = d$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



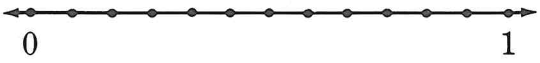
6. $\frac{1}{3} - \frac{1}{4} = e$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



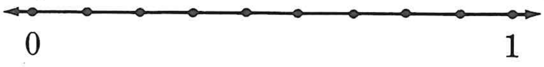
7. $\frac{2}{3} - \frac{1}{4} = f$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



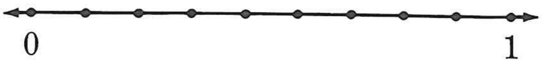
8. $\frac{3}{4} - \frac{2}{3} = g$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



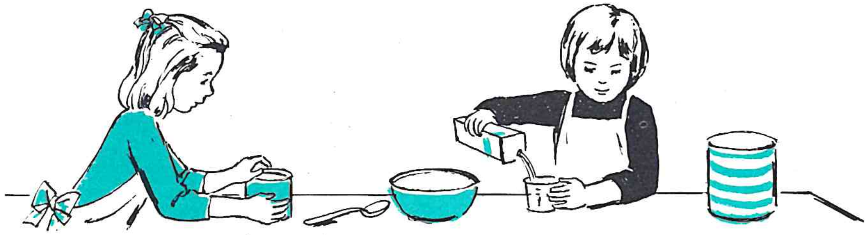
9. $\frac{1}{3} - \frac{1}{9} = k$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



10. $\frac{2}{3} - \frac{1}{9} = q$

$\frac{?}{?} - \frac{?}{?} = \underline{\ ?\ }$



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Betsy spent one-fourth of a day with her friend Susan. The first one-eighth of the day the girls played with paper dolls. The rest of the time they baked a cake. What part of the whole day did the girls spend baking the cake?
2. Betsy measured out one-fourth of a cup of milk. The cake recipe called for five-eighths cup of milk. How much more milk did Betsy need for the cake?
3. The cake recipe called for one cup of sugar. Susan could find only one-half cup of sugar. How much sugar did Susan have to borrow in order to make the cake?
4. Susan gave one-third of the cake to Betsy to take home. What part of the cake was left for Susan's family?
5. To make paper-doll dresses, Susan cut off one-fourth of a sheet of blue paper. Betsy used another part of this paper. Together the girls used seven-twelfths of the paper. What part did Betsy use?
6. Betsy colored one dress two-thirds blue and one-sixth red. She left the rest white. What part of the dress did Betsy leave white?

Copy and complete each equation, writing + or − in place of the △.

7. $\frac{2}{8} \triangle \frac{3}{8} = \frac{5}{8}$
8. $\frac{3}{7} = \frac{2}{7} \triangle \frac{1}{7}$
9. $\frac{11}{11} = \frac{11}{11} \triangle \frac{0}{11}$
10. $\frac{9}{12} \triangle \frac{5}{12} = \frac{4}{12}$
11. $\frac{1}{3} \triangle \frac{1}{6} = \frac{1}{6}$
12. $\frac{1}{5} \triangle \frac{2}{10} = \frac{4}{10}$
13. $\frac{2}{3} = \frac{1}{3} \triangle \frac{3}{9}$
14. $\frac{12}{12} = \frac{3}{6} \triangle \frac{3}{6}$
15. $\frac{1}{3} \triangle \frac{1}{4} = \frac{7}{12}$
16. $\frac{1}{2} \triangle \frac{2}{5} = \frac{9}{10}$
17. $\frac{7}{12} \triangle \frac{2}{6} = \frac{1}{4}$
18. $\frac{1}{2} \triangle \frac{1}{3} = \frac{1}{6}$

Copy and complete each equation.

1. $\frac{4}{8} + \frac{4}{8} = \underline{\quad ? \quad}$

2. $\frac{2}{4} + \frac{2}{4} = \underline{\quad ? \quad}$

3. $\frac{4}{9} - \frac{0}{6} = \underline{\quad ? \quad}$

4. $\underline{\quad ? \quad} + \frac{3}{9} = \frac{2}{3}$

5. $\frac{1}{5} + \underline{\quad ? \quad} = \frac{7}{10}$

6. $\frac{2}{3} - \frac{1}{12} = \underline{\quad ? \quad}$

7. $\frac{1}{4} + \frac{8}{12} = \underline{\quad ? \quad}$

8. $\frac{6}{9} - \underline{\quad ? \quad} = \frac{2}{12}$

9. $\frac{6}{8} + \frac{1}{4} = \underline{\quad ? \quad}$

10. $\frac{0}{12} + \underline{\quad ? \quad} = \frac{1}{2}$

11. $\frac{2}{3} - \frac{4}{9} = \underline{\quad ? \quad}$

12. $\frac{5}{10} + \frac{1}{2} = \underline{\quad ? \quad}$

13. $\frac{9}{12} - \underline{\quad ? \quad} = \frac{1}{3}$

14. $\frac{9}{9} - \frac{9}{9} = \underline{\quad ? \quad}$

15. $\frac{3}{8} + \frac{1}{4} = \underline{\quad ? \quad}$

16. $\frac{2}{4} + \frac{2}{6} = \underline{\quad ? \quad}$

17. $\frac{4}{6} + \frac{2}{9} = \underline{\quad ? \quad}$

18. $\frac{9}{10} - \underline{\quad ? \quad} = \frac{3}{5}$

19. $\frac{3}{12} + \frac{5}{8} = \underline{\quad ? \quad}$

20. $\frac{5}{12} - \underline{\quad ? \quad} = \frac{1}{6}$

21. $\frac{1}{2} + \left(\frac{1}{6} + \frac{1}{3}\right) = \underline{\quad ? \quad}$

22. $\left(\frac{1}{2} + \frac{1}{6}\right) + \frac{1}{3} = \underline{\quad ? \quad}$

23. $\left(\frac{1}{3} + \frac{1}{6}\right) + \frac{5}{12} = \underline{\quad ? \quad}$

24. $\left(\frac{1}{3} + \frac{1}{4}\right) + \frac{1}{6} = \underline{\quad ? \quad}$

Copy and complete each sentence, writing $<$, $>$, or $=$ in place of the $\bigcirc$.

25. $\frac{6}{8} \bigcirc \frac{2}{3}$

26. $\frac{9}{10} \bigcirc \frac{11}{12}$

27. $\frac{8}{9} \bigcirc \frac{2}{3}$

28. $\frac{4}{5} \bigcirc \frac{7}{8}$

29. $\frac{1}{5} + \frac{1}{10} \bigcirc \frac{1}{3} + \frac{2}{4}$

30. $\frac{1}{3} + \frac{1}{6} \bigcirc \frac{2}{3} - \frac{1}{6}$

31. $\frac{2}{3} - \frac{3}{6} \bigcirc \frac{1}{2} - \frac{1}{3}$

32. $\frac{4}{6} - \frac{1}{3} \bigcirc \frac{7}{12} - \frac{1}{4}$

33. $\frac{4}{9} - \frac{1}{3} \bigcirc \frac{9}{12} + \frac{1}{6}$

34. $\frac{11}{12} - \frac{1}{4} \bigcirc \frac{1}{12} + \frac{2}{3}$

35. $\frac{3}{5} + \frac{4}{10} \bigcirc \frac{3}{6} + \frac{4}{8}$

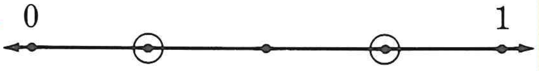
36. $\frac{11}{12} - \frac{1}{4} \bigcirc 1 - \frac{1}{3}$

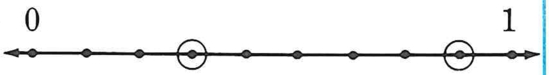
REVIEW

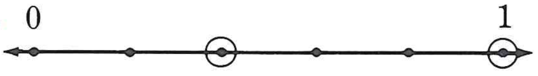
Copy and complete each equation.

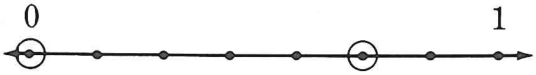
1. $\frac{2}{4} = \frac{4}{8}$
2. $1 = \frac{?}{10}$
3. $\frac{2}{3} = \frac{4}{6}$
4. $1 = \frac{?}{4}$
5. $0 = \frac{0}{3}$
6. $\frac{1}{5} = \frac{?}{10}$
7. $\frac{1}{2} = \frac{?}{10}$
8. $0 = \frac{?}{8}$

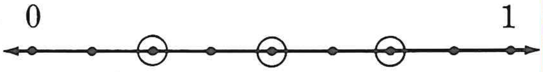
Write a fraction for each point that is circled on the number line.

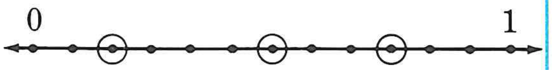
9.


10.


11.


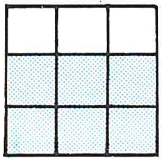
12.


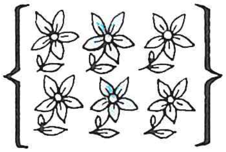
13.


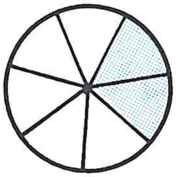
14.


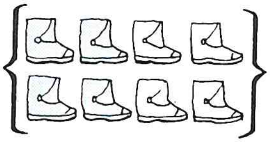
Match each fraction with the correct region or set picture.

15. $\frac{1}{2}$
16. $\frac{2}{7}$
17. $\frac{4}{8}$
18. $\frac{6}{9}$
19. $\frac{1}{3}$
20. $\frac{2}{4}$
21. $\frac{2}{6}$
22. $\frac{2}{3}$

A


B


C


D


Rename each fractional number as shown.

23. $\frac{1}{2} = \frac{?}{4} = \frac{?}{?} = \frac{?}{?} = \frac{?}{?} = \frac{?}{?}$

24. $\frac{1}{3} = \frac{3}{?} = \frac{?}{?} = \frac{?}{?}$

25. $\frac{3}{4} = \frac{?}{?} = \frac{?}{?}$

26. $\frac{2}{3} = \frac{?}{?} = \frac{?}{?} = \frac{?}{?}$

Copy and complete each equation.

1. $\frac{4}{12} + \frac{5}{12} = \underline{\quad ? \quad}$

2. $\frac{3}{10} + \frac{1}{5} = \underline{\quad ? \quad}$

3. $\frac{5}{9} - \underline{\quad ? \quad} = \frac{1}{3}$

4. $\frac{3}{12} - \frac{1}{12} = \underline{\quad ? \quad}$

5. $\underline{\quad ? \quad} - \frac{6}{10} = \frac{1}{5}$

6. $\underline{\quad ? \quad} + \frac{8}{9} = 1$

7. $\frac{12}{12} - \underline{\quad ? \quad} = \frac{1}{3}$

8. $\frac{3}{4} - \frac{2}{3} = \underline{\quad ? \quad}$

Copy and complete each sentence, writing $>$, $<$, or $=$ in place of the $\bigcirc$.

9. $\frac{1}{10} \bigcirc \frac{1}{11}$

10. $\frac{2}{4} \bigcirc \frac{5}{9}$

11. $\frac{1}{2} + \frac{1}{3} \bigcirc \frac{7}{12}$

12. $\frac{2}{3} + \frac{1}{6} \bigcirc \frac{1}{10} + \frac{1}{2}$

13. $\frac{2}{12} - \frac{1}{6} \bigcirc \frac{5}{10} - \frac{2}{5}$

14. $\frac{4}{9} - \frac{1}{3} \bigcirc \frac{2}{3} - \frac{5}{9}$

15. $\left(\frac{2}{3} + \frac{1}{6}\right) - \frac{3}{4} \bigcirc \left(\frac{3}{8} + \frac{3}{6}\right) - \frac{3}{4}$

16. $\left(\frac{1}{2} + \frac{1}{3}\right) + \frac{1}{6} \bigcirc \frac{1}{2} + \left(\frac{1}{3} + \frac{1}{6}\right)$

For each story problem, write an equation and solve it. Then write a sentence to answer the question.

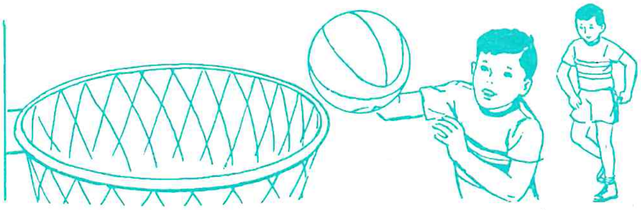
17. Daniel has a red and white rug in his room. Two-fifths of the rug is red. What part of the rug is white?

18. One-fifth of Nick's garden is planted with corn, one-half is planted with beans, and one-tenth is planted with cabbage. What part of his garden do these three vegetables fill?

19. Ronny's grandmother lives one-fourth of a mile away. His aunt lives seven-twelfths of a mile away. How much farther away does his aunt live than his grandmother?

20. Alan spent one-third of an hour playing baseball, one-sixth of the same hour playing tag, and one-fourth of the hour eating. The rest of the hour he rode his bike. For what part of the hour did Alan ride his bike?

AVERAGES AND GRAPHS



1. John played basketball three days last week. He scored 12 points on Wednesday, 8 points on Thursday, and 7 points on Friday. How many points did he score in these three days?

2. Dave played basketball on Tuesday, Wednesday, and Thursday. He scored the same number of points on each of these three days. His total score was the same as John's total score. How many points did Dave score on Wednesday?

3. John's basketball team played six games. The team's scores were 24, 28, 18, 17, 25, and 20. How many points did the team score in the six games?

4. Dave's team also played six games. Their total score was the same as the total score of John's team. They scored the same number of points in each of their six games. How many points did they score in each game?

5. Mrs. Winter gave her class an arithmetic quiz each day last week. The sum of Marcia's grades on these quizzes was 450. She received the same grade on each quiz. What was her grade on each quiz?

6. The sum of Betty's grades was 365. If she had received the same grade on each quiz, what would each grade have been? The sum of Bob's grades was 405. If he had received the same grade on each quiz, what would each grade have been?

7. Allen's grades on the quizzes were 70, 85, 80, 90, and 75. What is the sum of these grades? If Allen had received the same grade on each quiz, what would each grade have been?

8. What is the sum of Allen's, Betty's, and Bob's grades for the week? Suppose Allen, Betty, and Bob had each received the same total score for the week. What would each student's total score have been?

1. Jack earned a total of $26.95 by working 7 afternoons at the drugstore. If he had earned the same amount each afternoon, how much money would he have earned each afternoon?

2. Last week Mark practiced the piano for an hour and thirty minutes. If he had practiced for 25 minutes on Monday and 30 minutes on Wednesday, how many minutes did he practice on Friday? If Mark had practiced for the same number of minutes each of these three days, how many minutes would he have practiced on Friday? This is the *average* amount of time Mark practiced each day.

3. On Monday the temperature outside at 9:00 a.m. was 45 degrees. On Tuesday it was 35 degrees. What is the average of these two temperatures?

4. Last week Mrs. King's fourth-grade class made a chart of the noon temperatures. What is the average of these five temperatures?

Mon.	38 degrees
Tues.	26 degrees
Wed.	18 degrees
Thurs.	22 degrees
Fri.	31 degrees

Six pupils made the following sets of test scores. List the number of scores, total score, and average for each pupil.

5. Bob

10	30	20

Number of scores __?__
Total __?__ Average __?__

6. Tom

30	40	40	50

7. Sue

56	88	34	42

8. Jim

60	40	60	30	80	90

9. May

95	43	0	75	82

10. Kay

91	87	83	99	93	89	81	97

1. Last month Tom made the following scores in basketball games: 18, 20, 18, 20, 15, 10, 25, 19, 26. What was his average score?

2. Last summer and fall, Bob found the following number of shells for his collection:

June–12
July–35
August–34
September–20
October–36
November–25

What was the average number of shells he collected?

3. Several boys earned the following amounts by shoveling snow after school:

Jack–25¢
Tom–10¢
Howard–10¢
Mark–10¢
Ernie–22¢
Allan–10¢
Bob–20¢
Pete–45¢
Jim–10¢

What was the average amount earned by the boys?

4. Harold's grades in last month's arithmetic test were 93, 97, 95, and 91. What was his average grade?

5. Three of the boys in Mike's cub scout den are 11 years old. The other three boys are 9 years old. What is their average age?

6. Some of the boys in Mrs. Horton's class collected paper last week for the school paper drive. The table at the top of page 159 shows how many pounds of paper each boy collected.

	John	Mark	Jack	Sam	Allan
Monday	31	16	19	41	53
Tuesday	37	30	61	/ 69	48
Wednesday	50	60	24	65	31
Thursday	36	49	26	43	26
Friday	20	28	50	25	32
Saturday	48	67	30	75	80
Total	222	240	210	318	270

a. How much did John get on Saturday?
b. How much did Mark get on Thursday?
c. How much did Jack get on Wednesday?
d. How much did Sam collect in all?
e. How much did Allan collect last week?
f. Who collected the most paper?
g. Who collected the least paper?

6)270

7. Copy and complete the following table to show the average amount of paper collected by each boy per day.

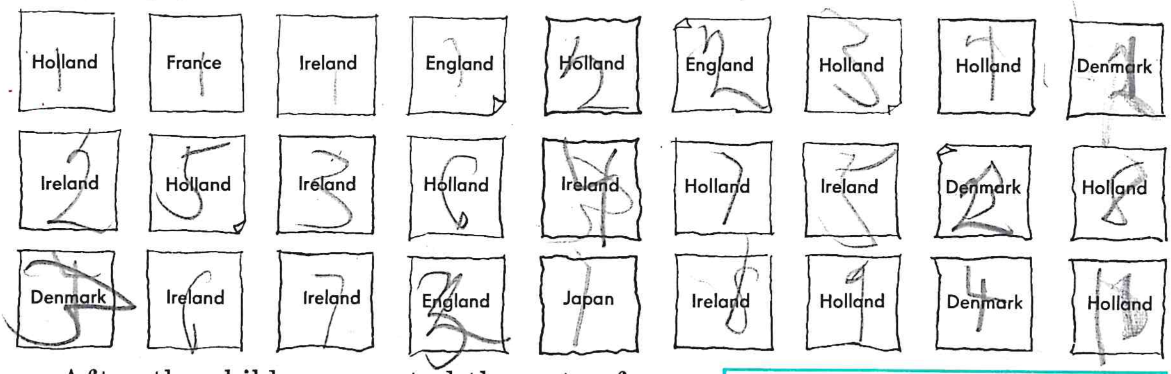
	John	Mark	Jack	Sam	Allan
Average	37	40	35	58	?

8. Who has the highest average?
9. Who collected the most paper?
10. Who has the lowest average?
11. Who collected the least paper?

12. Copy this chart and, for each day, show the total and average amounts of paper collected by the five boys.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Total amount	?	?	?	?	?	?
Average amount	?	?	?	?	?	?

The children in Mrs. Horton's class wanted to write to a fourth-grade class in some other country. Each child wrote his choice on a slip of paper.



After the children counted the votes for the countries, they made the following table.

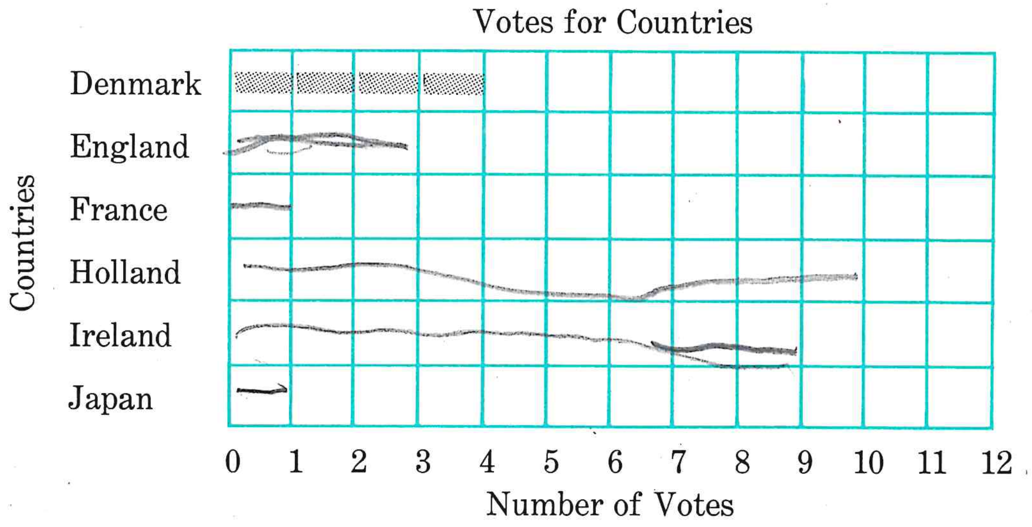
1. Copy and complete the table.

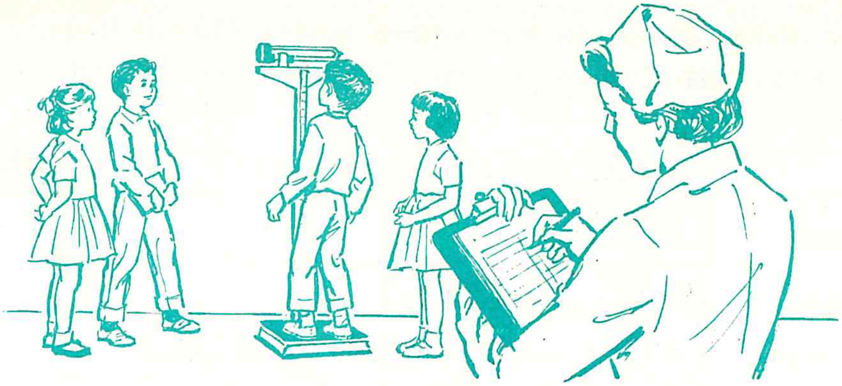
2. Which country did the class choose?

VOTES FOR COUNTRIES	
Denmark	4
England	?
France	?
Holland	?
Ireland	?
Japan	?

Next, the children made a *bar graph* showing the votes.

3. Copy and complete the table.





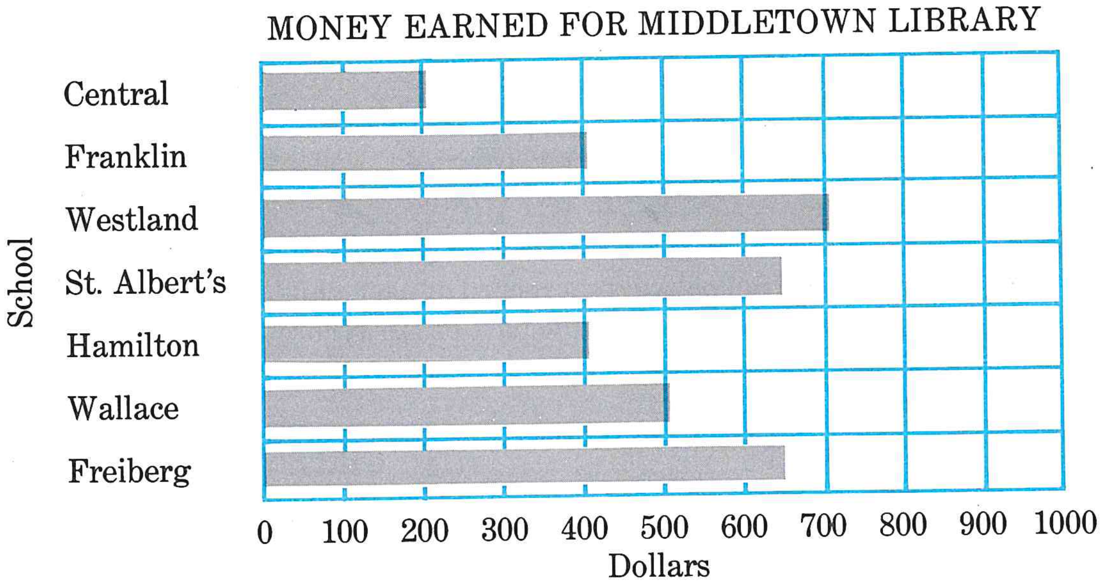
The nurse at Blair School keeps a record of each child's weight and height. The two tables below show part of her records for the girls in Mrs. Henry's class.

GIRLS' HEIGHTS	
Carol	53
Teresa	50
Gayle	49
Rosemary	56
Thelma	54
Pat	57
Judy	49
Agnes	56
Mary	53

GIRLS' WEIGHTS	
Carol	76
Teresa	65
Gayle	80
Rosemary	82
Thelma	67
Pat	70
Judy	65
Agnes	74
Mary	78

1. What is the average height of the girls in Mrs. Henry's class?
2. What is the average weight of the girls in Mrs. Henry's class?
3. Make a bar graph to show each girl's height.
4. Make a bar graph to show each girl's weight.

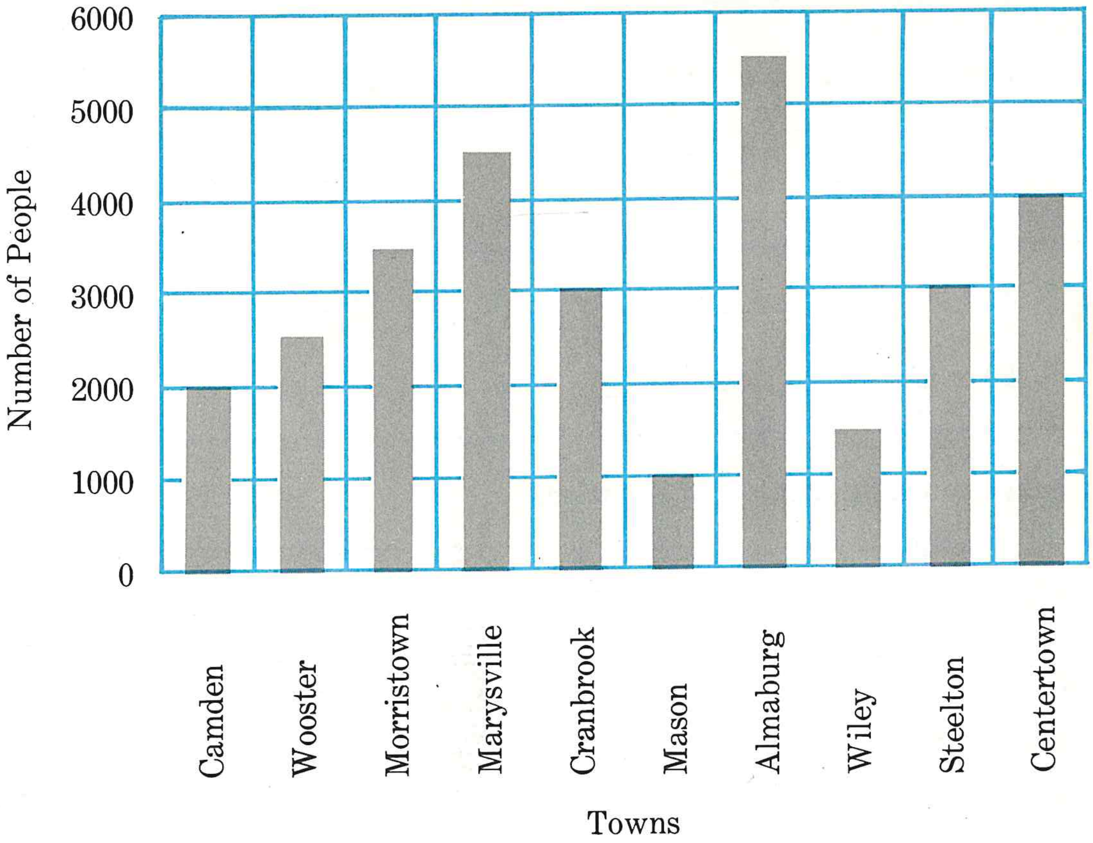
Eight of the schools in Middletown held a contest to see which school could earn the most money for a new Middletown Library.



Use the bar graph to help you answer these questions.

1. Which school won the contest?
2. Which school earned the least money?
3. Did Wallace School earn more than $400?
4. Did it earn more than $450?
5. Did Freiberg School earn more than $600?
6. Did it earn more than $650?
7. Did it earn more than $700?
8. About how much did the Westland School earn?
9. About how much did St. Albert's earn?
10. Which two schools earned the same amount?
11. What was the total amount earned for the Middletown Library?
12. What was the average of the amounts earned by the schools?

Population of Ten Small Towns near Midville



1. Which town has the most people? Almaburg

2. Which town has the fewest people?

3. What is the total number of people in the ten towns?

4. What is the average of the numbers of people in the ten towns?

5. In which towns is the number of people above the average?

6. In which towns is the number of people below the average?

MULTIPLICATION OF WHOLE NUMBERS

Use the associative property to find the products.

1. $3 \times 40 = 3 \times (4 \times 10)$
$= (\underline{\ ?\ } \times \underline{\ ?\ }) \times 10$
$= \underline{\ ?\ } \times 10$
$= \underline{\ ?\ }$

2. $50 \times 9 = (10 \times \underline{\ ?\ }) \times 9$
$= 10 \times (\underline{\ ?\ } \times 9)$
$= 10 \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

3. $8 \times 50 = 8 \times (\underline{\ ?\ } \times \underline{\ ?\ })$

4. $32 \times 30 = 32 \times (\underline{\ ?\ } \times \underline{\ ?\ })$

5. $20 \times 15 = (\underline{\ ?\ } \times 2) \times \underline{\ ?\ }$

6. $24 \times 30 = 24 \times (\underline{\ ?\ } \times \underline{\ ?\ })$

Copy and complete each set of equations.

	A	B	C	D
7.	$7 \times 6 = \underline{\ ?\ }$ $7 \times 60 = \underline{\ ?\ }$	$3 \times 9 = \underline{\ ?\ }$ $30 \times 9 = \underline{\ ?\ }$	$8 \times 5 = \underline{\ ?\ }$ $8 \times 50 = \underline{\ ?\ }$	$7 \times 8 = \underline{\ ?\ }$ $7 \times 80 = ?$
8.	$4 \times 8 = \underline{\ ?\ }$ $40 \times 8 = \underline{\ ?\ }$	$9 \times 9 = \underline{\ ?\ }$ $9 \times 90 = \underline{\ ?\ }$	$300 \times 1 = \underline{\ ?\ }$ $300 \times 10 = \underline{\ ?\ }$	$21 \times 4 = \underline{\ ?\ }$ $21 \times 40 = \underline{\ ?\ }$
9.	$305 \times 1 = \underline{\ ?\ }$ $305 \times 10 = \underline{\ ?\ }$	$120 \times 1 = \underline{\ ?\ }$ $120 \times 10 = \underline{\ ?\ }$	$24 \times 2 = \underline{\ ?\ }$ $24 \times 20 = \underline{\ ?\ }$	$33 \times 3 = \underline{\ ?\ }$ $33 \times 30 = \underline{\ ?\ }$

Find the products.

10. $\begin{array}{r} 70 \\ \times\ 5 \\ \hline \end{array}$ **11.** $\begin{array}{r} 60 \\ \times\ 6 \\ \hline \end{array}$ **12.** $\begin{array}{r} 150 \\ \times\ 10 \\ \hline \end{array}$ **13.** $\begin{array}{r} 8 \\ \times 40 \\ \hline \end{array}$ **14.** $\begin{array}{r} 31 \\ \times 30 \\ \hline \end{array}$

Use the associative property to find the products.

1. $40 \times 20 = 40 \times (2 \times \underline{\ ?\ })$
$= (40 \times 2) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

2. $70 \times 30 = (\underline{\ ?\ } \times 7) \times 30$
$= \underline{\ ?\ } \times (7 \times 30)$
$= \underline{\ ?\ } \times \square$
$= \underline{\ ?\ }$

3. $50 \times 80 = 50 \times (\underline{\ ?\ } \times \underline{\ ?\ })$
$= (50 \times \underline{\ ?\ }) \times \underline{\ ?\ }$
$= \square \times \underline{\ ?\ }$
$= \underline{\ ?\ }$

---

opy and complete each set of equations.

4.
$6 \times 3 = \underline{\ ?\ }$ 18
$60 \times 3 = \underline{\ ?\ }$ 180
$60 \times 30 = \underline{\ ?\ }$ 1800

5.
$4 \times 7 = \underline{\ ?\ }$ 28
$4 \times 70 = \underline{\ ?\ }$ 280
$40 \times 70 = \underline{\ ?\ }$ 2800

6.
$5 \times 5 = \underline{\ ?\ }$ 25
$50 \times 5 = \underline{\ ?\ }$ 250
$50 \times 50 = \underline{\ ?\ }$ 2500

7.
$8 \times 6 = \underline{\ ?\ }$ 48
$8 \times 60 = \underline{\ ?\ }$
$80 \times 60 = \underline{\ ?\ }$

8.
$4 \times 6 = \underline{\ ?\ }$
$40 \times 6 = \underline{\ ?\ }$
$40 \times 60 = \underline{\ ?\ }$

9.
$9 \times 5 = \underline{\ ?\ }$
$90 \times 5 = \underline{\ ?\ }$
$90 \times 50 = \underline{\ ?\ }$

10.
$7 \times 7 = \underline{\ ?\ }$
$70 \times 7 = \underline{\ ?\ }$
$70 \times 70 = \underline{\ ?\ }$

11.
$7 \times 9 = \underline{\ ?\ }$
$70 \times 9 = \underline{\ ?\ }$
$70 \times 90 = \underline{\ ?\ }$

---

ind the products.

2. $\begin{array}{r} 90 \\ \times 40 \\ \hline \end{array}$ **14.** $\begin{array}{r} 50 \\ \times 20 \\ \hline \end{array}$ **16.** $\begin{array}{r} 30 \\ \times 70 \\ \hline \end{array}$ **18.** $\begin{array}{r} 80 \\ \times 20 \\ \hline \end{array}$ **20.** $\begin{array}{r} 20 \\ \times 70 \\ \hline \end{array}$

3. $\begin{array}{r} 50 \\ \times 60 \\ \hline \end{array}$ **15.** $\begin{array}{r} 90 \\ \times 30 \\ \hline \end{array}$ **17.** $\begin{array}{r} 40 \\ \times 40 \\ \hline \end{array}$ **19.** $\begin{array}{r} 80 \\ \times 70 \\ \hline \end{array}$ **21.** $\begin{array}{r} 90 \\ \times 60 \\ \hline \end{array}$

---

opy the exercises, writing the correct digit in place of each $\square$.

2. $\begin{array}{r} \square\square \\ \times\ \ 5\ 0 \\ \hline 1\ 5\ 0\ 0 \end{array}$ **23.** $\begin{array}{r} 3\ 0 \\ \times\ \ \square\square \\ \hline 2\ 4\ 0\ 0 \end{array}$ **24.** $\begin{array}{r} 1\ 0 \\ \times\ \ \square\square \\ \hline 1\ 0\ 0 \end{array}$ **25.** $\begin{array}{r} \square\square \\ \times\ \ 4\ 0 \\ \hline 3\ 2\ 0\ 0 \end{array}$ **26.** $\begin{array}{r} 2\ 0 \\ \times\ \ \square\square \\ \hline 1\ 0\ 0\ 0 \end{array}$

Use the distributive property to find the products.

1. 40 × 21 = 40 × (20 + 1)
= (40 × __?__) + (40 × __?__)
= __?__ + __?__
= □

2. 70 × 63 = 70 × (60 + 3)
= (__?__ × 60) + (__?__ × 3)
= __?__ + __?__
= □

3. 30×(60+2)=__?__+__?__=□

4. 50×(50+4)=__?__+__?__=□

5. 70×(20+4)=__?__+__?__=□

6. 80×(20+1)=__?__+__?__=□

7. 50×(60+3)=__?__+__?__=□

8. 40×(30+4)=__?__+__?__=□

9. 80×(30+5)=__?__+__?__=□

10. 60×(90+8)=__?__+__?__=□

11. 60×(40+2)=__?__+__?__=□

12. 90×(20+4)=__?__+__?__=□

13. 20×(20+5)=__?__+__?__=□

14. 60×(60+7)=__?__+__?__=□

15. 70×(50+8)=__?__+__?__=□

16. 30×(70+3)=__?__+__?__=□

17. 80×(40+6)=__?__+__?__=□

18. 90×(90+9)=__?__+__?__=□

Copy and complete each problem.

1.
$$\begin{array}{rcr} 40 & + & 3 \\ \times & & 20 \\ \hline \underline{\ ?\ } + \underline{\ ?\ } & = & \underline{\ ?\ } \end{array} \qquad \begin{array}{r} 4\ 3 \\ \times\ 2\ 0 \\ \hline \square\square \\ \square\square\square \\ \hline \square\square\square \end{array}$$

2.
$$\begin{array}{rcr} 80 & + & 9 \\ \times & & 70 \\ \hline \underline{\ ?\ } + \underline{\ ?\ } & = & \underline{\ ?\ } \end{array} \qquad \begin{array}{r} 8\ 9 \\ \times\ 7\ 0 \\ \hline \square\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

Find the products.

3. $\begin{array}{r} 21 \\ \times 30 \\ \hline 630 \end{array}$
6. $\begin{array}{r} 11 \\ \times 20 \\ \hline 220 \end{array}$
9. $\begin{array}{r} 32 \\ \times 40 \\ \hline 1280 \end{array}$
12. $\begin{array}{r} 23 \\ \times 30 \\ \hline 690 \end{array}$

4. $\begin{array}{r} 21 \\ \times 50 \\ \hline 1050 \end{array}$
7. $\begin{array}{r} 55 \\ \times 30 \\ \hline 1650 \end{array}$
10. $\begin{array}{r} 91 \\ \times 60 \\ \hline 5460 \end{array}$
13. $\begin{array}{r} 95 \\ \times 30 \\ \hline 2850 \end{array}$

5. $\begin{array}{r} 81 \\ \times 70 \\ \hline 5570 \end{array}$
8. $\begin{array}{r} 97 \\ \times 10 \\ \hline 970 \end{array}$
11. $\begin{array}{r} 68 \\ \times 80 \\ \hline 5490 \end{array}$
14. $\begin{array}{r} 98 \\ \times 50 \\ \hline 4800 \end{array}$

---

15. John's father uses a yardstick to measure the rooms of a house he is building. John knows that there are 36 inches in one yard. Copy and complete the table to show how many inches there are in more than one yard.

Yards	1	2	3	4	5	10	20	30	40	50
Inches	?	?	?	?	?	?	?	?	?	?

Use the associative property to complete each example.

1. $20 \times 46 = (10 \times 2) \times 46$
$= 10 \times (2 \times 46)$
$= 10 \times \square$
$= 920$

$$\begin{array}{r} 46 \\ \times 20 \\ \hline 920 \end{array}$$

2. $70 \times 51 = (\underline{\;?\;} \times 7) \times 51$
$= \underline{\;?\;} \times (7 \times 51)$
$= \underline{\;?\;} \times \square$
$= \underline{\;?\;}$

$$\begin{array}{r} 5\;1 \\ \times\; 7\;0 \\ \hline \square\square\square\,0 \end{array}$$

Find the products.

	A	B	C	D	E
3.	$\begin{array}{r} 21 \\ \times 20 \\ \hline \end{array}$	$\begin{array}{r} 15 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 81 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 43 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 49 \\ \times 40 \\ \hline \end{array}$
4.	$\begin{array}{r} 14 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 76 \\ \times 40 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 65 \\ \times 50 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ \times 20 \\ \hline \end{array}$
5.	$\begin{array}{r} 87 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 69 \\ \times 10 \\ \hline \end{array}$	$\begin{array}{r} 54 \\ \times 80 \\ \hline \end{array}$	$\begin{array}{r} 96 \\ \times 60 \\ \hline \end{array}$	$\begin{array}{r} 89 \\ \times 20 \\ \hline \end{array}$
6.	$\begin{array}{r} 76 \\ \times 90 \\ \hline \end{array}$	$\begin{array}{r} 67 \\ \times 70 \\ \hline \end{array}$	$\begin{array}{r} 84 \\ \times 90 \\ \hline \end{array}$	$\begin{array}{r} 79 \\ \times 30 \\ \hline \end{array}$	$\begin{array}{r} 85 \\ \times 40 \\ \hline \end{array}$

7. Theresa's mother told her that there are 16 ounces in a pound. Theresa made a table to show how many ounces there are in more than one pound. Copy and complete Theresa's table.

Pounds	1	3	5	7	9	10	30	50	70	90
Ounces	16	?	?	?	?	?	?	?	?	?

Copy and complete each table.

1.

FEET	1	2	3	4	5	6	7	8	9
INCHES	12	?	?	?	?	?	?	?	?

2.

FEET	10	20	30	40	50	60	70	80	90
INCHES	?	?	?	?	?	?	?	?	?

3.

YARDS	1	3	5	7	9	10	30	50	70	90
INCHES	36	?	?	?	?	?	?	?	?	?

4.

POUNDS	1	2	4	6	8	10	20	40	60	80
OUNCES	? 16	?	?	?	?	?	?	?	?	?

Find the products.

	A	**B**	**C**	**D**	**E**
5.	14 × 6	26 × 3	98 × 5	57 × 7	87 × 8
6.	14 ×60	26 ×30	98 ×50	57 ×70	87 ×80

Copy and complete each problem.

1.

$$\begin{array}{r} 2\ 7 \\ \times\ \ \ \ 2 \\ \hline \square\square \end{array}$$

$$\begin{array}{r} 2\ 7 \\ \times\ 3\ 0 \\ \hline \square\square\square \end{array}$$

2. $32 \times 27 = (30 + 2) \times 27$

$= (\underline{\ ?\ } \times 27) + (\underline{\ ?\ } \times 27)$

$= \underline{\ ?\ } + \underline{\ ?\ }$

$= \underline{\ ?\ }$

3.

$$\begin{array}{r} 2\ 7 \\ \times\ 3\ 2 \\ \hline \square\square \\ \square\square\square \\ \hline \square\square\square \end{array}$$

Find the products.

4. $\begin{array}{r} 14 \\ \times 16 \\ \hline \end{array}$ **5.** $\begin{array}{r} 26 \\ \times 31 \\ \hline \end{array}$ **6.** $\begin{array}{r} 28 \\ \times 33 \\ \hline \end{array}$ **7.** $\begin{array}{r} 19 \\ \times 54 \\ \hline \end{array}$

8. $\begin{array}{r} 17 \\ \times 22 \\ \hline \end{array}$ **9.** $\begin{array}{r} 29 \\ \times 13 \\ \hline \end{array}$ **10.** $\begin{array}{r} 15 \\ \times 61 \\ \hline \end{array}$ **11.** $\begin{array}{r} 14 \\ \times 36 \\ \hline \end{array}$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

12. To prepare for a talent show, Mrs. Jones's class practiced 35 minutes each day for 23 days. For how many minutes did they practice?

13. Suzanne sold tickets to the talent show. Each day for 12 days she sold 30 student tickets and 8 adult tickets. How many tickets did she sell?

Copy and complete each example.

1.

$$\begin{array}{r} 7\ 6 \\ \times\quad 9 \\ \hline \square\square\square \end{array}$$

$$\begin{array}{r} 7\ 6 \\ \times\ 5\ 0 \\ \hline \square\square\square\square \end{array}$$

2.

$$\begin{aligned} 59 \times 76 &= (50 + 9) \times 76 \\ &= (50 \times \underline{\ ?\ }) + (9 \times \underline{\ ?\ }) \\ &= \underline{\ ?\ } + \underline{\ ?\ } \\ &= \underline{\ ?\ } \end{aligned}$$

3.

$$\begin{array}{r} 7\ 6 \\ \times\ 5\ 9 \\ \hline \square\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

Find the products.

4. $\begin{array}{r} 98 \\ \times 75 \\ \hline \end{array}$ **5.** $\begin{array}{r} 57 \\ \times 87 \\ \hline \end{array}$ **6.** $\begin{array}{r} 86 \\ \times 94 \\ \hline \end{array}$ **7.** $\begin{array}{r} 87 \\ \times 85 \\ \hline \end{array}$

8. $\begin{array}{r} 95 \\ \times 96 \\ \hline \end{array}$ **9.** $\begin{array}{r} 59 \\ \times 45 \\ \hline \end{array}$ **10.** $\begin{array}{r} 78 \\ \times 46 \\ \hline \end{array}$ **11.** $\begin{array}{r} 97 \\ \times 66 \\ \hline \end{array}$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

12. Each of 43 boys plans to sell 45 boxes of candy before Christmas. If each boy meets his quota, how many boxes will the boys sell?

13. Every Saturday last year John went swimming in the high school gym. He swam for 30 minutes, took a rest, and then swam for 8 minutes more. How many minutes did John swim last year?

Copy each table. Estimate the products to the nearest multiple of one hundred. Find the exact answers. How are the estimates and the exact answers alike?

1.	Estimate	Exact	Difference
40×64	2400	2560	160
50×76	?	?	200
20×83	?	?	?
30×92	?	?	?
23×60	?	?	?
15×80	?	?	?
37×70	?	?	?
48×90	?	?	?

2.	Estimate	Exact	Difference
32×24	?	?	?
51×64	?	?	?
43×89	?	?	?
74×58	?	?	?
67×92	?	?	?
28×72	?	?	?
97×49	?	?	?
85×35	?	?	?

Copy and complete each equation.

3. 50 × 20 = 739 + ___?___

4. 30 × 17 = 484 + ___?___

5. 60 × 86 = ___?___ + 2796

6. 40 × 38 = ___?___ + 957

7. 70 × 95 = ___?___ − 8432

8. 62 × 10 = ___?___ − 3079

9. 29 × 80 = ___?___ − 5260

10. 43 × 60 = 7058 − ___?___

11. 54 × 90 = 4860 − ___?___

12. ___?___ + 270 = 19 × 27

13. ___?___ + 5280 = 81 × 66

14. ___?___ − 1084 = 94 × 58

15. ___?___ − 6735 = 67 × 32

16. ___?___ − 9243 = 42 × 73

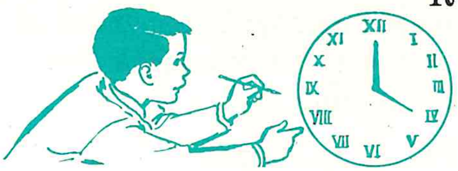
17. 856 + ___?___ = 73 × 15

18. 1263 + ___?___ = 36 × 54

19. 4207 − ___?___ = 58 × 49

20. 7890 − ___?___ = 25 × 99

ROMAN NUMERALS



1. Roman numerals are sometimes used on clocks. What time is shown on this clock?

2. Roman numerals are sometimes used for chapter names in books. What is the standard Hindu-Arabic numeral for VI?

3. Copy and complete the table.

Roman Numerals	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Hindu-Arabic Numerals	1	2	3	4	5	6	7	8	9	10	11	12

4. Only 3 different symbols were used to make the Roman numerals shown in the table. What are they?

These symbols are used in the following ways. Copy and complete each equation.

If a symbol is repeated, the numbers named are added. A symbol is not repeated more than three times in a row.

5. II=1+1=2
6. III=1+1+1=3
7. XX=10+10=20

If a symbol for a lesser number appears to the right of the symbol for a greater number, then the lesser number is added to the greater number.

8. VI=5+1=6
9. VII=5+2=7
10. XIII=10+ ? = ?
11. XXII=20+ ? = ?

If a symbol for a lesser number appears to the left of the symbol for a greater number, then the lesser number is subtracted from the greater number.

12. IV=5−1= ?
13. IX= ? − ? = ?

If a symbol for a lesser number appears between the symbols for two greater numbers, we subtract before we add.

14. XIV=10+(5−1)=10+ ? = ?
15. XIX=10+(10−1)=10+ ? = ?
16. XXIV= ? +(5−1)= ? + ? = ?

Copy the Hindu-Arabic numerals. Then rename each number in expanded notation and in Roman numerals.

1. 13 10+3 XIII
2. 14 XIV
3. 15 XV
4. 16 XVI
5. 21 XXI
6. 34 XXVII
7. 26 XXVI
8. 30 XXX
9. 29 XXIX
10. 32 [illegible]
11. 33 [illegible]
12. 27 XXVII
13. 38 XXXVIII

Copy the Roman numerals. Then rename each number in expanded notation and with the standard Hindu-Arabic numeral.

14. XVII 10+7 17
15. XVIII
16. XIX
17. XX
18. XXIII
19. XXV
20. XXXI
21. XXXV
22. XXIV
23. XXXVII
24. XXXVI
25. XXVIII
26. XXXIX

Copy and complete each sentence, writing >, <, or = in place of the ○.

27. 10+9 ○ XIX
28. XXX ○ III
29. IV ○ VI
30. 23 ○ XXXII
31. XXXIV ○ 30+4
32. 20+6 ○ XXIV
33. IX ○ 10−1
34. XXIX ○ XXXI
35. XVII ○ 7+10
36. 2×4 ○ IX

Romans used three symbols, I, V, and X, to name numbers 1 through 39. They used another symbol to help them to name the numbers 40 through 89.

L = 50

Copy the Hindu-Arabic numerals. Then rename each number in expanded notation and in Roman numerals.

1. 49 IL
2. 52 LII
3. 28 XXVIII
4. 73 LXXIII
5. 70 LXX
6. 83 LXXXIII
7. 46 XXXXVI
8. 59 LIX
9. 61 LXI

Copy the Roman numerals. Then rename each number in expanded notation and with the standard Hindu-Arabic numeral.

10. XL
11. LX
12. XXXIX
13. XLIV
14. XLIX
15. LXXX
16. LV
17. LXXXVIII
18. LXXIV

Find the sums.

19. XII + VII = [illegible] ?
20. VI + IV = X ?
21. XLVI + XIX = LXXIII ?
22. XX + XXX = L ?
23. LXXIX + IX = ?
24. XVI + LXV = ?

Find the differences.

25. XXIV − XI = ?
26. XIII − IX = ?
27. XLV − XXI = ?
28. XXX − IV = ?
29. LXXXIX − XLV = ?
30. LXXVIII − XII = ?

The Romans used four symbols, I, V, X, and L, to name numbers 1 through 89. They used two more to help them name the numbers 90 through 899.

C = 100 D = 500

Copy and complete each table.

1.

Roman Numerals	I	II	III	IV	V	VI	VII	VIII	IX
Hindu-Arabic Numerals	1	2	3	4	5	6	7	8	9

2.

Roman Numerals	X	XX	XXX	XL	L	LX	LXX	LXXX	XC
Hindu-Arabic Numerals	10	20	30	40	50	60	70	80	90

3.

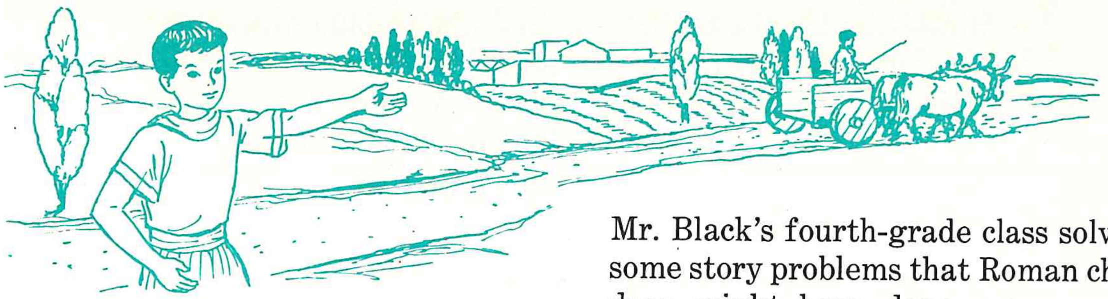
Roman Numerals	C	CC	CCC	CD	D	DC	DCC	DCC
Hindu-Arabic Numerals	100	200	300	400	500	600	700	800

Write the Roman numeral for each number.

4. 300 CCC
5. 330 CCCXXX
6. 333 CCCXXXIII
7. 92 L
8. 505
9. 550
10. 723
11. 609
12. 294
13. 556
14. 543
15. 851
16. 499
17. 807
18. 198
19. 99

Write the Hindu-Arabic numeral for each number.

20. CI
21. CX
22. CXI
23. CDL
24. DCCIV
25. DCXLVII
26. DLV
27. CDXC
28. XCIX
29. DCCCXXI
30. XLVII
31. CCXCV
32. DCLXIV
33. CDXX
34. LXXXIX
35. DCCCXC



Mr. Black's fourth-grade class solved some story problems that Roman children might have done many years ago.

For each story problem, write an equation and solve it. Then write a sentence to answer the question. Use Roman numerals.

1. Marcus visited a farm near Rome and saw XLIII cows, IV horses, XXVII sheep, and I dog. How many animals did Marcus see?

2. Marcus saw the new Colosseum in the year LXXX when he was IX years old. When was Marcus born?

3. It took about XI years to build the Colosseum. If the building was started in the year LXIX, when was it finished?

4. Marcus saved XLVIII coins. He gave XVI of them to his mother. How many did he have left?

5. Livia is XII years old. How old will she be in VII years?

6. Antony stayed with his cousin in Greece for XXX days. It took him XIV days to get to Greece and XIV days to get back to Rome. How long was Antony gone?

7. While walking in Rome, Julius counted LIV chariots. If II horses pulled each chariot, how many horses did Julius see?

8. Maria picked LXIII apples for her VII friends. If she gave each friend the same number of apples, how many did each friend get?

Copy the Hindu-Arabic numerals. Then rename each number in expanded notation and in Roman numerals.

1. 235
2. 843
3. 624
4. 372
5. 586
6. 459
7. 701
8. 197
9. 868
10. 226
11. 310

Copy the Roman numerals. Then rename each number in expanded notation and with the standard Hindu-Arabic numeral.

12. CCCXLVI
13. DCCXXV
14. DCIII
15. CIV
16. DIV
17. CCCXCVII
18. LXXXI
19. CCXLVII
20. DCLXXV
21. CDLI
22. DCCCXLIV

Copy and complete each sentence, writing $>$, $<$, or $=$ in place of the ○.

23. CCCVII − CCC ○ DCCXL − DCCXXXIII
24. DCXCVIII − DLXIII ○ DCCCLXXX − DLXXXIII
25. DCCLXIV + CXX ○ DCXXI + CLXXIII
26. CDLXI − CLXXI ○ CCCXIV + C
27. CCCXI + CCXLIV ○ CL + CDV
28. DCCXL − DCVII ○ DCCCIV − CCXLIV

REVIEW

Copy and solve each equation.

1. $\frac{1}{8} + \frac{3}{8} = \underline{\ ?\ }$
2. $\frac{0}{6} + \frac{1}{6} = \underline{\ ?\ }$
3. $\frac{2}{5} - \frac{1}{10} = \underline{\ ?\ }$
4. $\frac{5}{9} - \frac{1}{3} = \underline{\ ?\ }$
5. $\frac{1}{2} + \frac{1}{4} = \underline{\ ?\ }$
6. $\frac{5}{6} - \underline{\ ?\ } = \frac{1}{6}$
7. $\underline{\ ?\ } + \frac{3}{4} = \frac{7}{8}$
8. $\underline{\ ?\ } - \frac{1}{6} = \frac{5}{12}$
9. $\frac{2}{10} - \frac{1}{5} = \underline{\ ?\ }$
10. $\underline{\ ?\ } + \frac{2}{3} = \frac{5}{6}$
11. $\frac{1}{2} + \frac{1}{3} = \underline{\ ?\ }$
12. $\frac{1}{4} - \underline{\ ?\ } = \frac{1}{12}$

Copy and complete the renaming of each fractional number.

13. $\frac{5}{6} = \frac{10}{?}$
14. $\frac{4}{5} = \frac{?}{?}$
15. $\frac{1}{4} = \frac{?}{8} = \frac{3}{?}$
16. $\frac{3}{4} = \frac{?}{?} = \frac{?}{?}$
17. $\frac{1}{3} = \frac{?}{6} = \frac{?}{9} = \frac{4}{?}$
18. $\frac{2}{3} = \frac{?}{?} = \frac{?}{?} = \frac{?}{?}$

Rewrite the fractions to show the order of the numbers from least to greatest.

19. $\frac{1}{2}, \frac{0}{9}, \frac{7}{12}, \frac{1}{5}, \frac{10}{10}, \frac{11}{12}$
20. $\frac{2}{3}, \frac{1}{12}, \frac{1}{5}, \frac{5}{8}, \frac{6}{6}, \frac{8}{9}$

Copy and complete each sentence, writing $>$, $<$, or $=$ in place of the ○.

21. CCXXI ○ 2×110
22. $70 + 70$ ○ 70×70
23. 9×9 ○ $729 \div 9$
24. 250×80 ○ $(25 \times 8) \times 100$
25. $2 \times 2 \times 2$ ○ $2 + 2 + 2$
26. 0×87 ○ $0 \div 8$
27. 37×43 ○ $(40 + 3) \times 37$
28. $(4 \times 4) \times 2$ ○ $256 \div 8$
29. $100 \div 10$ ○ 100×10
30. 83×40 ○ $(83 \times 4) \times 10$

Find the sums.

1. $\begin{array}{r} 8356 \\ 472 \\ +1089 \\ \hline 927 \end{array}$

2. $\begin{array}{r} 365 \\ 48 \\ +723 \\ \hline 1136 \end{array}$

3. $\begin{array}{r} 2587 \\ 489 \\ +8325 \\ \hline 1 \end{array}$

4. $\begin{array}{r} 4670 \\ 3005 \\ +\ 408 \\ \hline \end{array}$

5. $\begin{array}{r} 27 \\ 36 \\ +579 \\ \hline \end{array}$

Find the differences.

6. $\begin{array}{r} 3006 \\ -1593 \\ \hline \end{array}$

7. $\begin{array}{r} 207 \\ -\ 36 \\ \hline \end{array}$

8. $\begin{array}{r} 13{,}159 \\ -\ 4{,}379 \\ \hline \end{array}$

9. $\begin{array}{r} 2116 \\ -1337 \\ \hline \end{array}$

10. $\begin{array}{r} 25{,}803 \\ -13{,}915 \\ \hline \end{array}$

Find the products.

11. $\begin{array}{r} 375 \\ \times\ \ 8 \\ \hline \end{array}$

12. $\begin{array}{r} 426 \\ \times\ 70 \\ \hline \end{array}$

13. $\begin{array}{r} 895 \\ \times\ 96 \\ \hline \end{array}$

14. $\begin{array}{r} 305 \\ \times\ \ 4 \\ \hline \end{array}$

15. $\begin{array}{r} 807 \\ \times\ 35 \\ \hline \end{array}$

Find the missing factors.

16. $5 \times \underline{\ ?\ } = 125$

17. $8 \times \underline{\ ?\ } = 512$

18. $\underline{\ ?\ } \times 6 = 108$

19. $\underline{\ ?\ } \times 9 = 2925$

20. $\underline{\ ?\ } \times 4 = 824$

21. $7 \times \underline{\ ?\ } = 2107$

22. One winter, 72 inches of snow fell in Cleveland, Ohio, during November, December, January, and February. If 30 inches fell in December, 18 inches fell in January, and 10 inches fell in February, how many inches fell in November? What was the average number of inches that fell each month?

MULTIPLICATION OF WHOLE NUMBERS

$$\begin{array}{r} 23 \\ \times\ 5 \\ \hline \end{array} \qquad \begin{array}{r} 23 \\ \times 40 \\ \hline \end{array}$$

$$\begin{aligned} 45 \times 23 &= (40 + 5) \times 23 \\ &= (\underline{\ ?\ } \times 23) + (\underline{\ ?\ } \times 23) \\ &= \underline{\ ?\ } + \underline{\ ?\ } \\ &= \underline{\ ?\ } \end{aligned}$$

$$\begin{array}{r} 2\ 3 \\ \times\ 4\ 5 \\ \hline \square\square\square \\ \square\square\square \\ \hline \square\square\square\square \end{array}$$

Find the products.

	A	B	C	D	E
1.	$\begin{array}{r}16\\ \times 23\\ \hline\end{array}$	$\begin{array}{r}73\\ \times 32\\ \hline\end{array}$	$\begin{array}{r}41\\ \times 15\\ \hline\end{array}$	$\begin{array}{r}64\\ \times 54\\ \hline\end{array}$	$\begin{array}{r}76\\ \times 61\\ \hline\end{array}$
2.	$\begin{array}{r}75\\ \times 85\\ \hline\end{array}$	$\begin{array}{r}28\\ \times 62\\ \hline\end{array}$	$\begin{array}{r}74\\ \times 87\\ \hline\end{array}$	$\begin{array}{r}38\\ \times 98\\ \hline\end{array}$	$\begin{array}{r}79\\ \times 29\\ \hline\end{array}$

Copy and complete each equation.

3. 19 × 18 = _?_

4. 31 × 38 = _?_

5. 69 × 35 = _?_

6. 49 × 14 = _?_

7. 34 × 37 = _?_

8. 57 × 15 = _?_

9. 79 × 69 = _?_

10. 62 × 84 = _?_

11. 32 × 25 = _?_

12. 46 × 69 = _?_

13. 89 × 25 = _?_

14. 74 × 78 = _?_

15. Show the order of the products from least to greatest.

36×72 86×58 98×48
91×52 60×46 69×32
53×40 35×85 79×67

16. Show the order of the products from greatest to least.

27×25 84×64 78×91
42×14 87×70 90×29
61×23 54×39 65×15

Copy and complete each sentence, writing >, <, or = in place of the ○.

1. 433 + 785 ○ 66 × 23
2. 10,521 − 9018 ○ 9018 ÷ 6
3. 43 × 20 ○ 50 × (10 + 5)
4. 90 × 10 ○ 96 × 9
5. 3005 ÷ 5 ○ 256 + 497
6. 61 × 2 ○ 976 ÷ 8
7. 20 × 50 ○ 10 × (10 × 10)
8. 4928 ÷ 7 ○ 1251 − 682
9. 73 × 83 ○ 87 × 75
10. 4 × (10 + 10) ○ 4 × (10 × 10)
11. 4032 ÷ 2 ○ 24 × 84
12. 96 × 86 ○ 10,000 − 1765

Use the associative property to find the products.

13. 30×200=(10×3)×200
=10×(__?__×200)
=10×__?__
=__?__

14. 70×500=(10×7)×500
=10×(__?__×__?__)
=__?__×__?__
=__?__

---

15. 60×400=(__?__×6)×400

16. 40×700=(__?__×4)×700

17. 50×300=(__?__×__?__)×300

18. 80×800=(__?__×__?__)×800

Find the products.

	A	B	C	D	E
19.	2 ×30	4 ×60	3 ×50	5 ×70	7 ×40
20.	20 ×30	40 ×60	30 ×50	50 ×70	70 ×40
21.	200 × 30	400 × 60	300 × 50	500 × 70	700 × 40

Use the associative property to find the products.

1. 40 × 236 = (10 × 4) × 236
= 10 × (4 × 236)
= 10 × 944
= 9440

$$\begin{array}{r} 236 \\ \times\ 40 \\ \hline 9440 \end{array}$$

2. 90 × 425 = (__?__ × 9) × 425
= __?__ × (9 × 425)
= __?__ × __?__
= __?__

$$\begin{array}{r} 425 \\ \times\ 90 \\ \hline \end{array}$$

3. 70 × 721 = (__?__ × 7) × 721
= __?__ × (7 × 721)
= __?__ × __?__
= __?__

$$\begin{array}{r} 721 \\ \times\ 70 \\ \hline \end{array}$$

4. 60 × 617 = (__?__ × 6) × __?__
= __?__ × (6 × __?__)
= __?__ × __?__
= __?__

$$\begin{array}{r} 617 \\ \times\ 60 \\ \hline \end{array}$$

Find the products.

	A	B	C	D	E
5.	827 × 20	385 × 50	745 × 40	950 × 60	174 × 30
6.	215 × 20	358 × 30	146 × 40	978 × 90	517 × 50
7.	168 × 80	698 × 60	301 × 90	513 × 80	197 × 70

Use the distributive property to find the products.

1. 30 × 231 = 30 × (200 + 30 + 1)
= (30 × 200) + (30 × 30) + (30 × 1)
= __?__ + __?__ + __?__
= __?__

2. 40 × 768 = 40 × (700 + 60 + 8)
= (40 × 700) + (40 × 6) + (40 × 8)
= __?__ + __?__ + __?__

3. 50 × 907 = 50 × (900 + 0 + 7)
= (50 × __?__) + (50 × __?__) + (50 × __?__)

4. 60 × 765 = 60 × (__?__ + __?__ + __?__)

5. 80 × 238 = 80 × (__?__ + __?__ + __?__)

6. 70 × 219 = __?__ × (__?__ + __?__ + __?__)

Find the products.

7.
```
   2 3 1
 ×   3 0
 -------
     ☐☐
    ☐☐☐
   ☐☐☐☐
 -------
   ☐☐☐☐
```

8.
```
    7 6 8
  ×   4 0
  -------
      ☐☐☐
     ☐☐☐☐
    ☐☐☐☐☐
  -------
    ☐☐☐☐☐
```

9. 907 × 50

10. 765 × 60

11. 238 × 80

12. 219 × 70

13. 423 × 90

14. 442 × 50

15. 147 × 30

16. 319 × 90

Copy and complete each table. Estimate the products by rounding the three-digit factors to the nearest multiple of one hundred, then multiplying. Find the exact products. Then find the difference between each estimate and the exact product.

1.	Estimated Product	Exact Product	Difference
20×217	4000	4340	340
195×80	?	?	400
606×30	?	?	?
40×391	?	?	?
410×70	?	?	?
793×60	?	?	?
50×778	?	?	?
90×551	?	?	?

2.	Estimated Product	Exact Product	Difference
30×289	?	?	?
416×50	?	?	?
20×299	?	?	?
70×907	?	?	?
80×211	?	?	?
401×60	?	?	?
629×40	?	?	?
90×314	?	?	?

Copy and complete each equation.

3. 40 × 245 = 3008 + ?

4. 397 × 30 = 5465 + ?

5. 50 × 521 = 30,000 − ?

6. 526 × 60 = ? + 29,777

7. 80 × 488 = 45,166 − ?

8. 90 × 987 = 100,000 − ?

9. 20 × 287 = 7201 − ?

10. 367 × 70 = ? + 19,488

11. 60 × 189 = ? + 4681

12. 30 × 235 = 2561 + ? + 3688

13. 576 × 20 = 12,500 − ?

14. 747 × 40 = ? + 18,959

15. 80 × 704 = 61,503 − ?

16. 20 × 823 = 19,572 − ?

17. 748 × 80 = ? + 41,287 + 9266

18. 30 × 803 = ? + 19,173

19. 60 × 268 = ? − 25,043

20. 990 × 90 = 11,927 + ?

$$\begin{array}{r} 275 \\ \times\ \ 3 \\ \hline \end{array}$$

$$\begin{array}{r} 275 \\ \times\ 20 \\ \hline \end{array}$$

$$\begin{aligned} 23 \times 275 &= (20 + 3) \times 275 \\ &= (20 \times 275) + (3 \times 275) \\ &= \underline{\ ?\ } + \underline{\ ?\ } \\ &= \underline{\ ?\ } \end{aligned}$$

$$\begin{array}{r} 2\ 7\ 5 \\ \times\ \ \ 2\ 3 \\ \hline \square\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

Find the products.

	A	B	C	D	E
1.	245 × 14	456 × 21	133 × 42	157 × 26	408 × 22
2.	309 × 32	108 × 19	215 × 34	327 × 11	406 × 21

3. Copy and complete the multiplication table.

×	300	70	6	370	360	376
2	?	?	?	?	?	?
20	?	?	?	?	?	?
22	?	?	?	?	?	?

$$\begin{array}{r} 496 \\ \times\ \ 7 \\ \hline \end{array}$$

$$\begin{array}{r} 496 \\ \times\ 50 \\ \hline \end{array}$$

$$\begin{aligned} 57 \times 496 &= (50 + 7) \times 496 \\ &= (50 \times 496) + (7 \times 496) \\ &= \underline{\ ?\ } + \underline{\ ?\ } \\ &= \underline{\ ?\ } \end{aligned}$$

$$\begin{array}{r} 4\ 9\ 6 \\ \times\ \ \ 5\ 7 \\ \hline \square\square\square\square \\ \square\square\square\square\square \\ \hline \square\square\square\square\square \end{array}$$

Find the products.

	A	**B**	**C**	**D**	**E**
1.	147 × 37	469 × 46	688 × 47	618 × 29	389 × 67
2.	475 × 35	169 × 38	317 × 68	198 × 39	395 × 28

3. Copy and complete the multiplication table.

×	296	297	298	299	300	301
35	?	?	?	?	?	?
45	?	?	?	?	?	?
55	?	?	?	?	?	?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. To reach their new home in Woodlawn, the Ross family drove 215 miles each day for 12 days. How many miles did they drive?

2. The moving van carried 14 boxes of books and 14 boxes of dishes. If each box weighed 25 pounds, how much did the books and dishes weigh?

3. At Nancy and David Ross's new school in Woodlawn, there are 19 classrooms with 29 children in each. How many children attend Woodlawn School?

4. Bill Ross goes to high school. He walks 18 blocks to school each morning and 18 blocks home each afternoon. If Bill attends school 22 days next month, how many blocks will he have walked during the month?

5. Mr. Ross plans to tile the basement floor in their new home. He needs 26 rows of tile with 48 tiles in each row. How many squares of tile must he buy?

6. Mrs. Ross wants to make curtains for the windows in their home. She needs 11 yards of material for each of the 12 downstairs windows, and 4 yards for each of the 12 upstairs windows. How much material must Mrs. Ross buy for all 24 windows?

For each story problem, write an equation and solve it. Then write a sentence to answer the question.

7. The first week in Woodlawn, Mrs. Ross spent \$37 for groceries. If she spends \$37 every week, how much will groceries cost for one year (52 weeks)?

8. Mr. Ross must take two buses to get to work. One bus ride costs 35¢, and the other costs 15¢. What does it cost Mr. Ross to ride to work each month if he works 21 days per month?

9. Mr. Ross buys two newspapers. One paper costs 50¢ per week and the other one costs 75¢ per week. How much will Mr. Ross pay for newspapers for 52 weeks?

10. Mrs. Ross buys a magazine that costs 35¢ each month. How much does the magazine cost for three years?

Copy and complete each set of equations.

11.

$$\begin{aligned} 2 + 2 &= \underline{\ ?\ } \\ 2 + 2 + 2 &= \underline{\ ?\ } \\ 2 + 2 + 2 + 2 &= \underline{\ ?\ } \\ 2 + 2 + 2 + 2 + 2 &= \underline{\ ?\ } \end{aligned}$$

12.

$$\begin{aligned} 7 + 7 &= \underline{\ ?\ } \\ 7 + 7 + 7 &= \underline{\ ?\ } \\ 7 + 7 + 7 + 7 &= \underline{\ ?\ } \\ 7 + 7 + 7 + 7 + 7 &= \underline{\ ?\ } \end{aligned}$$

13.

$$\begin{aligned} 2 \times 2 &= \underline{\ ?\ } \\ 2 \times 2 \times 2 &= \underline{\ ?\ } \\ 2 \times 2 \times 2 \times 2 &= \underline{\ ?\ } \\ 2 \times 2 \times 2 \times 2 \times 2 &= \underline{\ ?\ } \end{aligned}$$

14.

$$\begin{aligned} 7 \times 7 &= \underline{\ ?\ } \\ 7 \times 7 \times 7 &= \underline{\ ?\ } \\ 7 \times 7 \times 7 \times 7 &= \underline{\ ?\ } \\ 7 \times 7 \times 7 \times 7 \times 7 &= \underline{\ ?\ } \end{aligned}$$

DIVISION OF WHOLE NUMBERS

$$\begin{array}{r|l} 3\,\overline{)\,90} & \\ -90 & 30 \\ \hline 0 & 30 \end{array} \qquad \begin{array}{r} 30 \\ 3\,\overline{)\,90} \\ -90 \\ \hline 0 \end{array} \qquad \begin{array}{r|l} 4\,\overline{)\,96} & \\ -80 & 20 \\ \hline 16 & \\ -16 & 4 \\ \hline 0 & 24 \end{array} \qquad \begin{array}{r} 2◌ \\ 4\,\overline{)\,96} \\ -80 \\ \hline 16 \end{array} \qquad \begin{array}{r} 24 \\ 4\,\overline{)\,96} \\ -80 \\ \hline 16 \\ -16 \\ \hline 0 \end{array}$$

Find the quotients.

1. $2\,\overline{)\,60}$
2. $4\,\overline{)\,68}$
3. $3\,\overline{)\,96}$
4. $3\,\overline{)\,57}$
5. $4\,\overline{)\,84}$
6. $2\,\overline{)\,78}$
7. $5\,\overline{)\,55}$
8. $3\,\overline{)\,84}$
9. $2\,\overline{)\,46}$
10. $5\,\overline{)\,65}$

Copy and complete each equation.

11. $4 \times \underline{\ \ ?\ \ } = 88$
12. $5 \times \underline{\ \ ?\ \ } = 90$
13. $4 \times \underline{\ \ ?\ \ } = 52$
14. $\underline{\ \ ?\ \ } \times 4 = 72$
15. $\underline{\ \ ?\ \ } \times 6 = 84$
16. $\underline{\ \ ?\ \ } \times 3 = 57$
17. $\underline{\ \ ?\ \ } \times 7 = 91$
18. $3 \times \underline{\ \ ?\ \ } = 87$
19. $\underline{\ \ ?\ \ } \times 5 = 75$
20. $\underline{\ \ ?\ \ } \times 2 = 72$
21. $2 \times \underline{\ \ ?\ \ } = 90$
22. $8 \times \underline{\ \ ?\ \ } = 96$

$$\begin{array}{r|l} 4\,\overline{)\,568} & \\ -400 & 100 \\ \hline 168 & \\ -160 & 40 \\ \hline 8 & \\ -8 & 2 \\ \hline 0 & 142 \end{array} \qquad \begin{array}{r} 1◌◌ \\ 4\,\overline{)\,568} \\ -400 \\ \hline 168 \end{array} \qquad \begin{array}{r} 14◌ \\ 4\,\overline{)\,568} \\ -400 \\ \hline 168 \\ -160 \\ \hline 8 \end{array} \qquad \begin{array}{r} 142 \\ 4\,\overline{)\,568} \\ -400 \\ \hline 168 \\ -160 \\ \hline 8 \\ -8 \\ \hline 0 \end{array}$$

Find the quotients.

23. $3\,\overline{)\,744}$
24. $7\,\overline{)\,875}$
25. $2\,\overline{)\,354}$
26. $3\,\overline{)\,948}$
27. $5\,\overline{)\,945}$
28. $7\,\overline{)\,882}$
29. $4\,\overline{)\,656}$
30. $8\,\overline{)\,928}$

Copy and complete each equation.

1. 3 × ___?___ = 783	5. ___?___ × 4 = 636	9. 3 × ___?___ = 735
2. ___?___ × 4 = 980	6. 6 × ___?___ = 870	10. 4 × ___?___ = 536
3. ___?___ × 7 = 833	7. ___?___ × 5 = 635	11. ___?___ × 5 = 795
4. 2 × ___?___ = 768	8. 3 × ___?___ = 948	12. ___?___ × 6 = 996

$$\begin{array}{r|r} 3\overline{)7944} & \\ -6000 & 2000 \\ \hline 1944 & \\ -1800 & 600 \\ \hline 144 & \\ -120 & 40 \\ \hline 24 & \\ -24 & 8 \\ \hline 0 & 2648 \end{array}$$

$$\begin{array}{r} 2000 \\ 3\overline{)7944} \\ -6000 \\ \hline 1944 \end{array}
\qquad
\begin{array}{r} 2600 \\ 3\overline{)7944} \\ -6000 \\ \hline 1944 \\ -1800 \\ \hline 144 \end{array}
\qquad
\begin{array}{r} 2640 \\ 3\overline{)7944} \\ -6000 \\ \hline 1944 \\ -1800 \\ \hline 144 \\ -120 \\ \hline 24 \end{array}
\qquad
\begin{array}{r} 2648 \\ 3\overline{)7944} \\ -6000 \\ \hline 1944 \\ -1800 \\ \hline 144 \\ -120 \\ \hline 24 \\ -24 \\ \hline 0 \end{array}$$

---

ind the quotients.

	A	B	C	D
13.	$\begin{array}{r} 2412 \\ 2\overline{)4824} \end{array}$	$\begin{array}{r} 2122\ R \\ 4\overline{)8488} \end{array}$	$\begin{array}{r} 3100 \\ 3\overline{)9000} \end{array}$	$\begin{array}{r} 2283 \\ 2\overline{)4566} \end{array}$
14.	$\begin{array}{r} 1112R4 \\ 8\overline{)8944} \end{array}$	$\begin{array}{r} 2935 \\ 3\overline{)7905} \end{array}$	$\begin{array}{r} 1905 \\ 4\overline{)7620} \end{array}$	$\begin{array}{r} 1379 \\ 6\overline{)8274} \end{array}$
15.	$\begin{array}{r} 1226 \\ 5\overline{)6230} \end{array}$	$\begin{array}{r} 2317 \\ 7\overline{)9219} \end{array}$	$\begin{array}{r} 2289 \\ 4\overline{)9156} \end{array}$	$\begin{array}{r} 1150 \\ 8\overline{)9256} \end{array}$

Copy and complete each set of equations.

1. $80 \div 4 = \underline{20}$
$800 \div 4 = \underline{201}$
$8000 \div 4 = \underline{2000}$

2. $55 \div 5 = \underline{11}$
$555 \div 5 = \underline{111}$
$5555 \div 5 = \underline{1111}$

3. $40 \div 4 = \underline{10}$
$408 \div 4 = \underline{100}$
$4080 \div 4 = \underline{1000}$

4. $66 \div 3 = \underline{22}$
$666 \div 3 = \underline{222}$
$6666 \div 3 = \underline{2222}$

5. $800 \div 2 = \underline{400}$
$800 \div 4 = \underline{200}$
$800 \div 8 = \underline{100}$

6. $9 \div 3 = \underline{3}$
$96 \div 3 = \underline{32}$
$963 \div 3 = \underline{32}$

7. $48 \div 4 = \underline{12}$
$484 \div 4 = \underline{121}$
$4848 \div 4 = \underline{1212}$

8. $1000 \div 2 = \underline{500}$
$100 \div 2 = \underline{50}$
$10 \div 2 = \underline{50}$

9. $7 \div 1 = \underline{7}$
$76 \div 1 = \underline{76}$
$765 \div 1 = \underline{765}$

Copy the exercises, writing the correct digit in place of each □.

10.
$\boxed{1}\boxed{3}\boxed{3}\boxed{2}$
× 3
3 9 9 6

11.
$\boxed{2}\boxed{1}\boxed{1}\boxed{4}$
× 2
4 2 2 8

12.
$\boxed{1}\boxed{1}\boxed{2}\boxed{1}$
× 4
4 4 8 4

13.
$\boxed{2}\boxed{2}\boxed{1}\boxed{3}$
× 3
6 6 3 9

14.
$\boxed{1}\boxed{2}\boxed{1}\boxed{4}$
× 4
4 8 5 6

15.
$\boxed{2}\boxed{3}\boxed{2}\boxed{4}$
× 3
6 9 7 2

16.
$\boxed{1}\boxed{1}\boxed{2}\boxed{3}$
× 6
6 7 3 8

17.
$\boxed{1}\boxed{1}\boxed{5}\boxed{9}$
× 9
1 0, 0 7 8 1

Copy and complete each sentence, writing >, <, or = in place of the ○.

1. 810 ÷ 9 ⧀ 90 × 9
2. 973 ÷ 7 ⧁ 73 + 67
3. 9584 ÷ 8 ⧀ 2000 − 892
4. 889 ÷ 7 ⧀ 46 + 45 + 36
5. 8424 ÷ 6 ⧀ 56 × (32 + 3)
6. 4552 ÷ 4 ○ 907 × 5
7. 6774 ÷ 6 ○ 50 × 20
8. 20,000 − 18,343 ○ 8785 ÷ 5
9. 144 × 12 ○ 9984 ÷ 8
10. 1000 + 130 + 8 ○ 7966 ÷ 7
11. 4750 − 3526 ○ 7356 ÷ 6
12. 57 × 46 ○ 8628 ÷ 4
13. 708 × 4 ○ 8502 ÷ 3
14. 393 × 3 ○ 8253 ÷ 7

Copy each table. Estimate the quotient by rounding the product down to the greatest multiple of 1000 that is less than the product and is a multiple of the divisor. Then divide. Find the difference between your estimate and the exact quotient.

15.	Estimated Quotient	Exact Quotient	Difference
4556 ÷ 2	2000	2278	278
9352 ÷ 8	?	?	?
5376 ÷ 4	?	?	?
8960 ÷ 7	?	?	?
9348 ÷ 6	?	?	?
9425 ÷ 5	?	?	?

16.	Estimated Quotient	Exact Quotient	Difference
6240 ÷ 5	?	?	?
8552 ÷ 4	?	?	?
9282 ÷ 7	?	?	?
9741 ÷ 3	?	?	?
6726 ÷ 6	?	?	?
9998 ÷ 2	?	?	?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Nora bought 120 tulip bulbs for her garden. If she plants 8 bulbs in each row, how many rows of tulips will she have?

2. Nora bought twice as many daffodil bulbs as tulip bulbs. If she plants 8 of these bulbs in each row, how many rows of daffodils will she have?

3. Nora's father said they must wait about 84 days before the roses would bloom. How many weeks must they wait?

4. Nora worked in her garden the same amount of time each day for the last five days. If she worked 225 minutes during the week, how many minutes did she work each day?

5. Which of the following numbers are divisible by 2? List them.

4 5 12 17 22 35 86 94 120 239 978

7 8 15 16 30 47 52 78 103 384 751

6. Each number in your list is what kind of number?

7. Which of the following numbers are divisible by 5? List them.

5 30 75 89 102 140 255 376 880 930

8. For each numeral in your list, what do you notice about the digit in the ones place?

Copy each set of equations and find the missing factors.

1. ? × 10 = 300

? × 10 = 310

? × 10 = 490

2. 20 × 4?481 = 400

20 × (8?3| = 420

20 × 6?8| = 440

3. 4?314 × 30 = 600

4?78 × 30 = 630

71?40 × 30 = 690

4. 800 ÷ 40 = ?

840 ÷ 40 = ?

880 ÷ 40 = ?

5. 500 ÷ 50 = 76?8

550 ÷ 50 = 11?071

600 ÷ 50 = ?

6. 930 ÷ 30 = ?

960 ÷ 30 = ?

990 ÷ 30 = ?

$$
\begin{array}{r|r|l}
20 & 640 & \\
 & -200 & 10 \\
\hline
 & 440 & \\
 & -200 & 10 \\
\hline
 & 240 & \\
 & -200 & 10 \\
\hline
 & 40 & \\
 & -40 & 2 \\
\hline
 & 0 & 32
\end{array}
\qquad\qquad
\begin{array}{r|r|l}
20 & 640 & \\
 & -600 & 30 \\
\hline
 & 40 & \\
 & -40 & 2 \\
\hline
 & 0 & 32
\end{array}
$$

Find the quotients.

7. $30\overline{)690}$

8. $40\overline{)480}$

9. $20\overline{)840}$

10. $30\overline{)990}$

$$\begin{array}{r|r} 30\,\overline{)\,960} & \\ -900 & 30 \\ \hline 60 & \\ -60 & 2 \\ \hline 0 & 32 \end{array} \qquad \begin{array}{r} 3\bigcirc \\ 30\,\overline{)\,960} \\ -900 \\ \hline 60 \end{array} \qquad \begin{array}{r} 32 \\ 30\,\overline{)\,960} \\ -900 \\ \hline 60 \\ -60 \\ \hline 0 \end{array}$$

Find the quotients.

	A	B	C	D
1.	$\begin{array}{r} 32 \\ 20\,\overline{)\,640} \\ 60 \\ \hline 40 \end{array}$	$40\,\overline{)\,480}$	$30\,\overline{)\,630}$	$50\,\overline{)\,550}$
2.	$30\,\overline{)\,810}$	$20\,\overline{)\,960}$	$40\,\overline{)\,560}$	$40\,\overline{)\,640}$
3.	$30\,\overline{)\,480}$	$50\,\overline{)\,650}$	$70\,\overline{)\,910}$	$50\,\overline{)\,950}$

$$\begin{array}{r|r} 42\,\overline{)\,924} & \\ -840 & 20 \\ \hline 84 & \\ -84 & 2 \\ \hline 0 & 22 \end{array} \qquad \begin{array}{r} 2\bigcirc \\ 42\,\overline{)\,924} \\ -840 \\ \hline 84 \end{array} \qquad \begin{array}{r} 22 \\ 42\,\overline{)\,924} \\ -840 \\ \hline 84 \\ -84 \\ \hline 0 \end{array}$$

Find the quotients.

	A	B	C	D
4.	$31\,\overline{)\,992}$	$25\,\overline{)\,350}$	$47\,\overline{)\,987}$	$52\,\overline{)\,676}$
5.	$16\,\overline{)\,544}$	$73\,\overline{)\,876}$	$66\,\overline{)\,726}$	$39\,\overline{)\,975}$

For each story problem, write an equation and solve it. Then write a sentence to answer the question.

1. The 24 boys in the Swim Club wanted to sell 312 tickets to the swimming meet. What is the average number of tickets each boy must sell?

2. John practiced diving for 408 hours last year. How many hours of practice did he average each month?

Rewrite the numerals to show the order of the numbers.

3.

	LEAST
693 ÷ 33	?
884 ÷ 26	?
675 ÷ 45	?
984 ÷ 41	?
493 ÷ 29	?
720 ÷ 18	?
	GREATEST

4.

	GREATEST
418 ÷ 19	?
648 ÷ 36	?
900 ÷ 25	?
589 ÷ 31	?
516 ÷ 12	?
966 ÷ 42	?
	LEAST

The statement at the top of each box is false. For each false statement, write three true statements. Use two numerals from the false statement to write each true statement.

5. 880 ÷ 40 = 20

800 ÷ 40 = 20

880 ÷ 40 = 22

880 ÷ 44 = 20

6. 5708 + 390 = 6870

7. 20 × 30 = 1200

8. 660 ÷ 20 = 30

9. 5405 − 379 = 5206

10. 20 × 70 = 1680

11. 8656 − 827 = 7821

$$\begin{array}{r|r} 20\,\overline{)\,5220} & \\ -4000 & 200 \\ \hline 1220 & \\ -1200 & 60 \\ \hline 20 & \\ -20 & 1 \\ \hline 0 & 261 \end{array}$$

$$\begin{array}{r} 2\,\square\,\square \\ 20\,\overline{)\,5220} \\ -4000 \\ \hline 1220 \end{array} \qquad \begin{array}{r} 26\,\square \\ 20\,\overline{)\,5220} \\ -4000 \\ \hline 1220 \\ -1200 \\ \hline 20 \end{array} \qquad \begin{array}{r} 261 \\ 20\,\overline{)\,5220} \\ -4000 \\ \hline 1220 \\ -1200 \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

Find the quotients.

	A	B	C	D
1.	$30\,\overline{)\,6000}$	$40\,\overline{)\,9600}$	$50\,\overline{)\,5500}$	$20\,\overline{)\,6180}$
2.	$50\,\overline{)\,7350}$	$30\,\overline{)\,7590}$	$60\,\overline{)\,7380}$	$80\,\overline{)\,9440}$
3.	$30\,\overline{)\,5640}$	$70\,\overline{)\,8190}$	$40\,\overline{)\,6360}$	$60\,\overline{)\,8220}$

Copy each statement. Write T before each true statement. Write F before each false statement.

4. $440 \div 20 = 20 + 2$

5. $1240 \div 40 = 10 \times 3$

6. $8450 \div 50 = 200 - 31$

7. $7800 \div 30 = 2 \times 52$

8. $9280 \div 80 = 100 + 10 + 16$

9. $9240 \div 70 = 11 \times 11$

10. $8340 \div 60 = 3000 - 2861$

11. $9450 \div 50 = 567 \div 3$

12. $8120 \div 70 = 23 \times 5$

13. $7440 \div 60 = 180 \times 60$

14. $8190 \div 70 = 68 + 34 + 15$

15. $8050 \div 70 = 5000 - 4895$

16. $5160 \div 40 = (40 \times 3) + (3 \times 3)$

17. $9520 \div 80 = 8330 \div 70$

18. $6200 \div 50 = 12 \times 12$

19. $8160 \div 60 = 4261 - 4127$

20. $7740 \div 60 = (50 \times 3) - (7 \times 3)$

21. $9440 \div 80 = 810 \div 9$

For each story problem, write an equation.
Then write a sentence to answer the question.

1. Lynn and Susan made towels. They used 30 inches of material for each towel. How many towels could they make from 420 inches of material?

2. Bud and Butch wove mats. Each mat took 80 yards of string. How many mats could they make from 880 yards of string?

3. June made 520 pieces of fudge. She put 40 pieces in each box. How many boxes did she need?

4. Elizabeth and Ann made address books. They used 660 sheets of paper to make 20 books. How many sheets of paper were in each book?

$$\begin{array}{r|r|r} 21 & 4410 & \\ & -4200 & 200 \\ \hline & 210 & \\ & -210 & 10 \\ \hline & 0 & 210 \end{array}$$

$$\begin{array}{rr} & 2\square\square \\ \hline 21 & \big) 4410 \\ & -4200 \\ \hline & 210 \end{array}$$

$$\begin{array}{rr} & 21\square \\ \hline 21 & \big) 4410 \\ & -4200 \\ \hline & 210 \\ & -210 \\ \hline & 0 \end{array}$$

Find the quotients.

	A	B	C	D
5.	$32\overline{)4480}$	$55\overline{)6380}$	$41\overline{)9020}$	$29\overline{)8990}$
6.	$62\overline{)8308}$	$37\overline{)7770}$	$71\overline{)9230}$	$46\overline{)9752}$
7.	$27\overline{)9450}$	$16\overline{)8368}$	$84\overline{)9660}$	$13\overline{)7995}$

Complete each equation.

8. $53 \times \underline{\ ?\ } = 7208$

9. $\underline{\ ?\ } \times 72 = 8064$

10. $980 \div 70 = \underline{\ ?\ }$

11. $2080 \div \underline{\ ?\ } = 26$

12. $68 \times 47 = \underline{\ ?\ }$

13. $39 \times \underline{\ ?\ } = 9555$

14. $6278 = 43 \times \underline{\ ?\ }$

15. $8316 = \underline{\ ?\ } \times 18$

16. $\underline{\ ?\ } = 59 \times 89$

17. $415 = \underline{\ ?\ } \div 14$

18. $8211 = 23 \times \underline{\ ?\ }$

19. $6164 = 46 \times \underline{\ ?\ }$

20. $\underline{\ ?\ } \times 17 = 8704$

21. $\underline{\ ?\ } = 73 \times 85$

22. $\underline{\ ?\ } \times 35 = 7840$

1. Copy and complete the table.

	+	−	×	÷
93 △ 31	124	62	?	3 ?
520 △ 20	?	?	?	?
533 △ 13	?	?	?	?
966 △ 46	?	?	?	?
9150 △ 50	?	?	?	?
910 △ 26	?	?	?	?
912 △ 38	?	?	?	?

$$\begin{array}{r|r} 21\overline{)\,4221} & \\ -4200 & 200 \\ \hline 21 & \\ -21 & 1 \\ \hline 0 & 201 \end{array}$$

$$\begin{array}{r} 2 \\ 21\overline{)\,4221} \\ -4200 \\ \hline 21 \end{array}$$

$$\begin{array}{r} 201 \\ 21\overline{)\,4221} \\ -4200 \\ \hline 21 \\ -21 \\ \hline 0 \end{array}$$

Find the quotients.

	A	B	C	D
2.	$19\overline{)7714}$	$32\overline{)6560}$	$24\overline{)7752}$	$13\overline{)6513}$
3.	$46\overline{)9614}$	$27\overline{)1458}$	$39\overline{)9282}$	$15\overline{)6075}$
4.	$35\overline{)9100}$	$25\overline{)7675}$	$48\overline{)9792}$	$16\overline{)7568}$

Copy the exercises, writing the correct digit in place of each $\square$.

	A	B	C	D
1.	$\begin{array}{r} \square\square\square \\ \times\ 13 \\ \hline 5421 \end{array}$	$\begin{array}{r} \square\square\square \\ \times\ 38 \\ \hline 8512 \end{array}$	$\begin{array}{r} \square\square\square \\ \times\ 29 \\ \hline 8845 \end{array}$	$\begin{array}{r} \square\square\square \\ \times\ 17 \\ \hline 9078 \end{array}$
2.	$\begin{array}{r} \square\square\square \\ \times\ 37 \\ \hline 8325 \end{array}$	$\begin{array}{r} \square\square\square \\ \times\ 14 \\ \hline 8638 \end{array}$	$\begin{array}{r} \square\square\square \\ \times\ 23 \\ \hline 7038 \end{array}$	$\begin{array}{r} \square\square\square \\ \times\ 45 \\ \hline 5310 \end{array}$
3.	$\begin{array}{r} 236 \\ 14\overline{)\square\square\square\square} \end{array}$	$\begin{array}{r} 156 \\ 31\overline{)\square\square\square\square} \end{array}$	$\begin{array}{r} 310 \\ 26\overline{)\square\square\square\square} \end{array}$	$\begin{array}{r} 208 \\ 48\overline{)\square\square\square\square} \end{array}$

Copy each equation, writing $+$, $-$, $\times$, or $\div$ in place of the $\triangle$ and $\bigtriangledown$.

4. $1620 \triangle 60 = 9 \bigtriangledown 3$

5. $100 \triangle 85 = 195 \bigtriangledown 13$

6. $42 \triangle 36 = 3000 \bigtriangledown 1488$

7. $450 \triangle 25 = 900 \triangle 50$

8. $16 \triangle 12 = 24 \triangle 8$

9. $37 \triangle 28 = 1020 \bigtriangledown 16$

Copy each equation, writing $>$, $<$ or $=$ in place of the $\bigcirc$.

10. $930 \div 31 \bigcirc 31 \times 30$

11. $774 \div 18 \bigcirc 1161 \div 27$

12. $3510 \div 26 \bigcirc 90 + 20 + 15$

13. $4884 \div 33 \bigcirc 13 \times 12$

14. $8112 \div 16 \bigcirc 8330 \div 17$

15. $5736 \div 24 \bigcirc 5000 - 4761$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Del Davis works 8 hours each day at a supermarket. How many days will it take him to work 104 hours?

2. Del sorted 2151 onions into bunches with 9 onions in each bunch. How many bunches of onions were there?

3. Del sold 726 bottles of soft drinks in 6-bottle cartons. How many cartons did he sell?

4. The baker delivered 204 doughnuts to the supermarket. How many cartons of 12 doughnuts each did the baker deliver?

5. Del often delivers grocery orders. Last month he used 23 gallons of gasoline to drive the truck 414 miles. How many miles did he average with each gallon of gasoline?

6. A restaurant bought 80 pounds of round steak. Their bill was $72.00. What was the cost of round steak per pound?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

7. Del put 1008 carrots into 72 bags. If each bag contained the same number of carrots, how many carrots were in each bag?

8. The first five women in the store Saturday spent \$27, \$36, \$58, \$41, and \$33. What was the average amount of money spent by these women?

9. The Dads' Club bought 1360 ice cream bars for their picnic. If each box contained 16 ice cream bars, how many boxes did they buy?

10. The supermarket ordered 1785 bags of candy. If 85 bags were sold each day, how many days did the candy last?

Copy and solve each equation.

11. $4 \times n = 72$

$4 \times \underline{\ ?\ } = 72$

12. $c \times 8 = 9352$

$\underline{\ ?\ } \times 8 = 9352$

13. $43 \times f = 559$

$43 \times \underline{\ ?\ } = 559$

14. $3611 \div 23 = m$

$3611 \div 23 = \underline{\ ?\ }$

15. $a \times 3 = 867$

$\underline{\ ?\ } \times 3 = 867$

16. $2 \times d = 7638$

$2 \times \underline{\ ?\ } = 7638$

17. $884 \div 26 = g$

$884 \div 26 = \underline{\ ?\ }$

18. $r \times 27 = 8802$

$\underline{\ ?\ } \times 27 = 8802$

19. $796 \div 4 = b$

$796 \div 4 = \underline{\ ?\ }$

20. $960 \div 30 = e$

$960 \div 30 = \underline{\ ?\ }$

21. $30 \times h = 9420$

$30 \times \underline{\ ?\ } = 9420$

22. $s \times 35 = 7490$

$\underline{\ ?\ } \times 35 = 7490$

23. $6 \times k = 7644$

$6 \times \underline{\ ?\ } = 7644$

24. $740 \div 20 = j$

$740 \div 20 = \underline{\ ?\ }$

25. $w \times 40 = 6920$

$\underline{\ ?\ } \times 40 = 6920$

26. $5508 \div 18 = v$

$5508 \div 18 = \underline{\ ?\ }$

LINEAR MEASUREMENT

Mrs. Jones asked the class, "How long is my desk?"

"About five," said Jim. "Five what?" asked Mrs. Jones.

"Five notebooks," Jim explained. "Your desk is about five times as long as my notebook."

"Fine," said Mrs. Jones, "you have used the length of your notebook as a *unit of length.*"

Could Jim have used a piece of chalk to measure Mrs. Jones's desk?

The number of units is the *measure*. In the expression "9 hand-widths," what is the measure? What is the unit of length?

To name a length we need both the measure and the unit of length.

The desk is 3 books long.

1. Its length is __?__.
2. The measure is __?__.
3. The unit of length is __?__.

The book is 7 paper clips tall.

4. The __?__ is 7.
5. The __?__ is a paper clip.

---

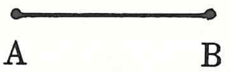
6. Copy and complete the table.

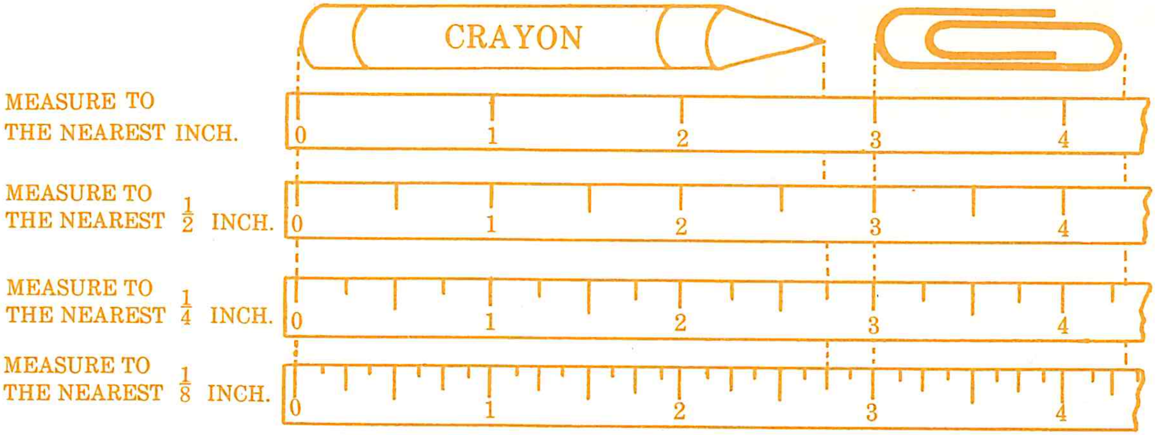
Length	Measure	Unit of Length
7 erasers	?	?
11 crayons	?	?
16 hop-steps	?	?
24 jump ropes	?	?
?	48	step
?	14	hand-span

Solve this story problem.

7. John was building a doghouse. He call Bob and asked him to bring over two boards. "Make sure that they are 5 pencils long," he said. Bob measured the boards carefully, but when he gave them to John, John said, "They are too short." What could have happened?

A unit of length often used in this country is the *inch*. The distance from A to B is 1 inch (1 in.).




CRAYON
MEASURE TO THE NEAREST INCH.
MEASURE TO THE NEAREST $\frac{1}{2}$ INCH.
MEASURE TO THE NEAREST $\frac{1}{4}$ INCH.
MEASURE TO THE NEAREST $\frac{1}{8}$ INCH.
0
1
2
3
4

About how long is the crayon?

1. To the nearest inch, the crayon is how many inches long?
2. To the nearest $\frac{1}{2}$ inch, the crayon is how many inches long?
3. To the nearest $\frac{1}{4}$ inch, the crayon is how many inches long?
4. To the nearest $\frac{1}{8}$ inch, the crayon is how many inches long?
5. Could you tell someone exactly how long the crayon is?

About how long is the paper clip?

6. To the nearest inch, the paper clip is how many inches long?
7. To the nearest $\frac{1}{2}$ inch, the paper clip is how many inches long?
8. To the nearest $\frac{1}{4}$ inch, the paper clip is how many inches long?
9. To the nearest $\frac{1}{8}$ inch, the paper clip is how many inches long?
10. Could you tell someone exactly how long the paper clip is?

Twelve inches is the same length as 1 foot (1 ft.). Then 13 inches is 1 foot 1 inch. Which is the greater length in each pair of lengths named below?

11.	**12.**	**13.**	**14.**
24 in.	3 ft.	1 ft. 3 in.	4 ft.
1 ft. 10 in.	33 in.	13 in.	40 in.

John measured his room. He found it to be 15 feet long. John asked Bob to measure the room. Bob said, "Your room is 5 yards long."

1. Did they both get the same length?

The two boys then measured a board. John said the board was 6 feet long. Bob said it was 2 yards long.

2. How were their answers different?

3. How were their answers the same?

1 yard (1 yd.) is __?__ feet in length.

Which is the greater length in each pair of lengths named below?

4.	1 ft. 6 in.	16 in.	**9.**	34 in.	1 yd.
5.	3 ft. 9 in.	1 yd. 3 in.	**10.**	6 ft. 2 in.	2 yd. 4 in.
6.	1 ft. 7 in.	18 in.	**11.**	50 in.	4 ft. 3 in.
7.	2 yd. 3 in.	6 ft.	**12.**	10 ft.	119 in.
8.	1 yd. 2 ft. 1 in.	62 in.	**13.**	18 ft.	5 yd. 2 ft.

On the Ohio Turnpike there is a sign that reads,

"NEW YORK: 600 __?__ VIA TURNPIKES."

14. What do you think the unit of length is?

15. The distance from one city to another is usually measured in __?__.

1 mile (1 mi.) is 1760 yards.

Why don't we measure distance between cities in yards?

16. One foot is how many inches?

17. One yard is how many feet?

18. One mile is how many yards?

19. One yard is how many inches?

20. One mile is how many feet?

Copy and complete each sentence.

1. 1 yd. is 36 in.
2. 30 in. is 2 ft. 6 in.
3. 14 in. is 2 ft. 2 in.
4. 48 in. is 1 yd. 1 ft.
5. 5 ft. is 1 yd. 1 in.
6. 2 mi. is ? yd.
7. (3 ft. − 2 ft.) is ? ft.
8. (1 ft. − 8 in.) is ? in.
9. (2 ft. + 3 in.) is ? ft. ? in.
10. (1 ft 2 in.) + (2 ft. 4 in.) is ? ft. ? in.
11. 3 yd. 2 in. is 2 yd. 3 ft. 2 in. or 2 yd. 2 ft. 14 in.
12. 4 ft. is ? yd. ? ft. or ? yd. ? ft. ? in.
13. 6 ft. 3 in. is ? yd. ? in. or ? yd. ? ft. ? in.
14. 2 yd. 2 ft. 3 in. is ? yd. ? ft. ? in. or ? yd. ? ft. ? in.

Add the measures and rename your answer.

      3 yd. 2 ft. 6 in.
    + 1 yd. 2 ft. 8 in.
      4 yd. 4 ft. 14 in.

14 in. is   1 ft. 2 in.
4 ft. is   1 yd. 1 ft.
4 yd. is   4 yd.
           5 yd. 2 ft. 2 in.

15.   10 in.
    + 4 in.
    ? in. is ? ft. ? in.

16.   2 yd. 1 ft. 7 in.
    + 3 yd. 1 ft. 8 in.

Find how much longer one length is than the other.

3 yd. 2 ft. 3 in.
4 yd. 1 ft. 1 in.

4 yd. 1 ft. 1 in. is 3 yd. 4 ft. 1 in.
3 yd. 2 ft. 3 in. is 3 yd. 2 ft. 3 in.

      3 yd. 3 ft. 13 in.
    − 3 yd. 2 ft. 3 in.
      0 yd. 1 ft. 10 in.

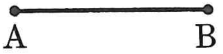
7. 3 yd. 2 ft. 7 in.
   1 yd. 2 ft. 10 in.

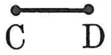
18. 6 yd. 1 ft. 3 in.
    2 yd. 2 ft. 2 in.

19. 2 yd. 2 ft. 6 in.
    4 yd. 1 ft. 10 in.

Sam found a ruler at home that was marked differently from the one he uses at school. The ruler at home did not have inches marked on it. The unit of length on his ruler is the *centimeter* (cm.).

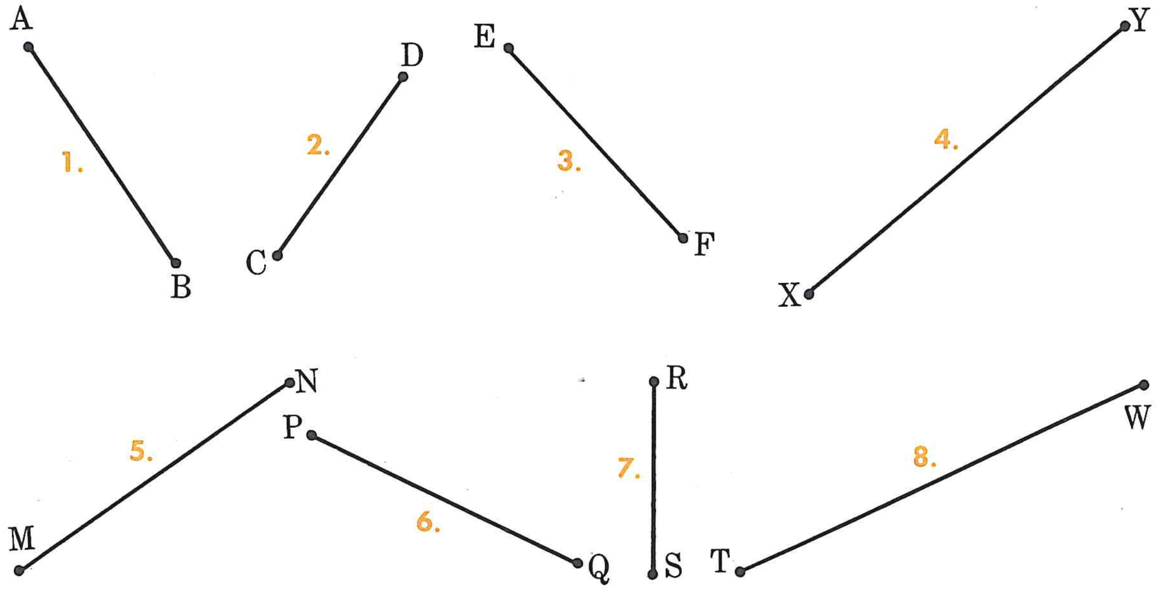
People in other countries do not usually use the inch, foot, and yard. These people and many scientists in our country use the *centimeter*, the *decimeter* (dm.), and the *meter* (m.). The distance from A to B is 1 inch and the distance from C to D is 1 centimeter.





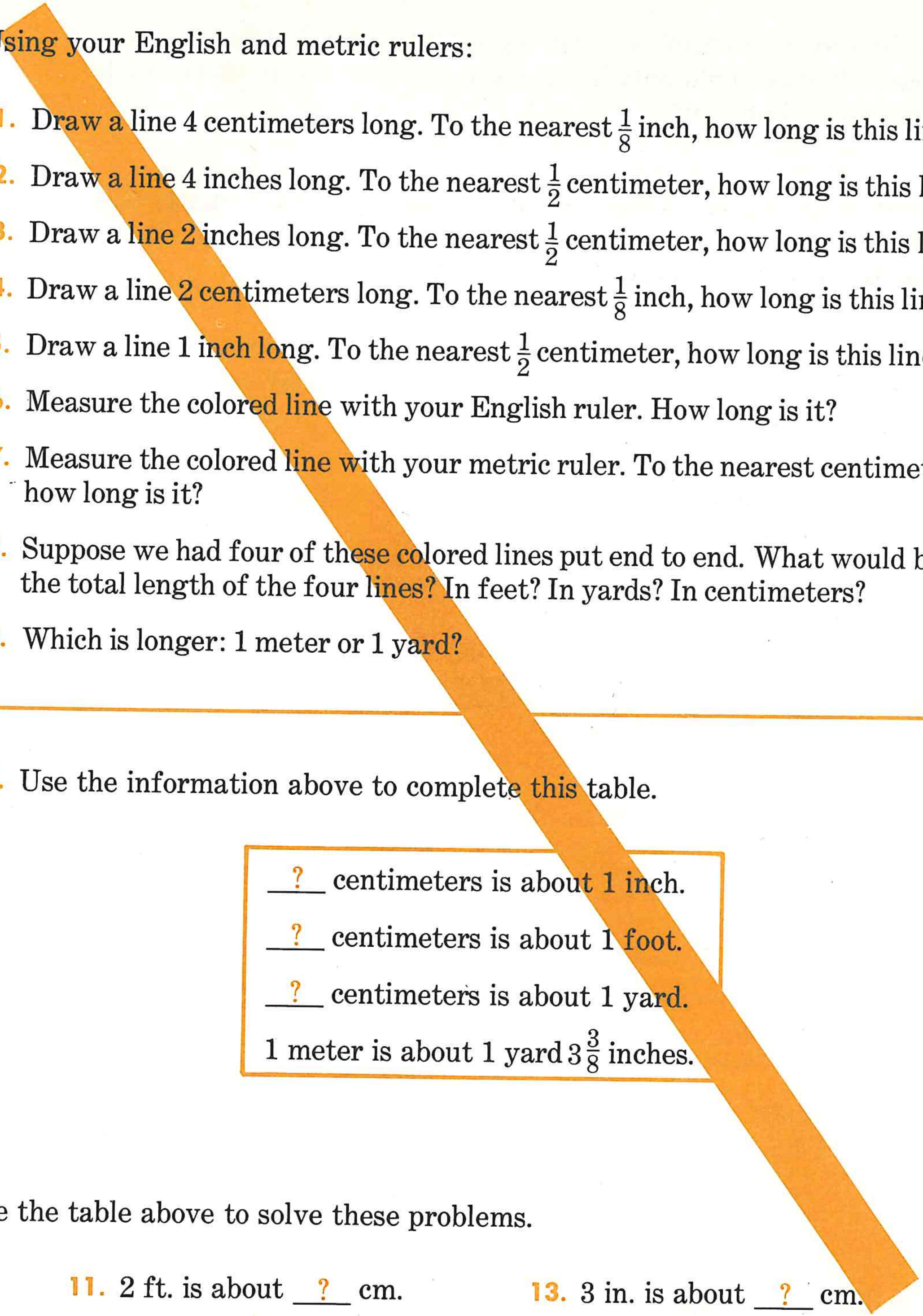
Use a sheet of paper to make a ruler having the centimeter as the unit of length. Make it 10 centimeters long. The length of your ruler is 1 *decimeter*. Fold it so that you can measure to the nearest $\frac{1}{2}$ centimeter.

Use your ruler to find the length between the points to the nearest $\frac{1}{2}$ centimeter.



The Metric System
10 centimeters is 1 decimeter
10 decimeters is 1 meter
100 centimeters is 1 meter

Using your English and metric rulers:



1. Draw a line 4 centimeters long. To the nearest $\frac{1}{8}$ inch, how long is this line?
2. Draw a line 4 inches long. To the nearest $\frac{1}{2}$ centimeter, how long is this line?
3. Draw a line 2 inches long. To the nearest $\frac{1}{2}$ centimeter, how long is this line?
4. Draw a line 2 centimeters long. To the nearest $\frac{1}{8}$ inch, how long is this line?
5. Draw a line 1 inch long. To the nearest $\frac{1}{2}$ centimeter, how long is this line?
6. Measure the colored line with your English ruler. How long is it?
7. Measure the colored line with your metric ruler. To the nearest centimeter, how long is it?
8. Suppose we had four of these colored lines put end to end. What would be the total length of the four lines? In feet? In yards? In centimeters?
9. Which is longer: 1 meter or 1 yard?

10. Use the information above to complete this table.

__?__ centimeters is about 1 inch.
__?__ centimeters is about 1 foot.
__?__ centimeters is about 1 yard.
1 meter is about 1 yard $3\frac{3}{8}$ inches.

Use the table above to solve these problems.

11. 2 ft. is about __?__ cm.
12. 2 in. is about __?__ cm.
13. 3 in. is about __?__ cm.
14. 2 yds. is about __?__ cm.

1. Charles rode to town on his bike. His mother needed 67 centimeters of lace. Charles could only buy a piece one meter long. How much extra lace did he buy?

2. Pierre measured the length around his desk. It was 2 meters 50 centimeters. He had 20 decimeters of tape he wanted to put around his desk. How much more tape did he need?

3. Paul and his classmates in fourth grade were high jumping. The highest that any of them was able to jump was 91 centimeters. About how high would this be in feet?

Find the total lengths.

4.
2 dm. 1 cm.
+ 6 cm.

5.
2 dm. 5 cm.
+ 6 dm. 2 cm.

6.
4 dm. 8 cm.
+ 2 dm.

7.
4 dm. 6 cm.
+ 3 dm. 7 cm.

8.
4 dm. 4 cm.
+ 2 dm. 3 cm.

9.
6 dm. 8 cm.
+ 3 dm. 2 cm.

Find the differences.

10.
2 dm. 6 cm.
− 4 cm.

11.
9 dm. 1 cm.
− 8 cm.

12.
4 dm. 9 cm.
− 3 dm.

13.
8 dm. 4 cm.
− 2 dm. 6 cm.

14.
6 dm. 4 cm.
− 4 dm. 1 cm.

15.
7 dm. 4 cm.
− 6 dm. 9 cm.

Solve the following problems. Answer with a sentence.

1. Bob had a board $4\frac{1}{2}$ feet long. He wanted to make a shelf $2\frac{1}{2}$ feet long. How many feet did he have to cut off ?

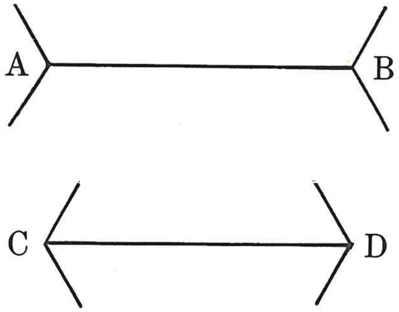
2. Jack estimated his telescope to be about $1\frac{1}{2}$ feet long. About how many inches is this? About how many centimeters?

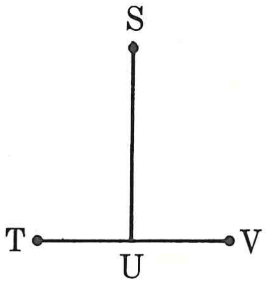
3. The decoration committee needed 6 yards of paper tape. They had the following lengths: 2 ft., $1\frac{1}{2}$ yd., $\frac{1}{2}$ yd., 12 ft. Did they have enough tape?

4. Betty Ann bought a 2 yard roll of ribbon. She used 18 inches. Betty Ann had ___?___ feet ___?___ inches of ribbon left.

The length of Dick's model airplane is 2 feet 2 inches. Tom's airplane is 1 foot 10 inches long. Dick's airplane is ___?___ feet ___?___ inches longer than Tom's.

Jim's father is 6 feet tall. Jim is 4 feet 8 inches tall. Jim's father is ___?___ feet ___?___ inches taller than Jim.





Which line looks longer?

How many centimeters long is AB?

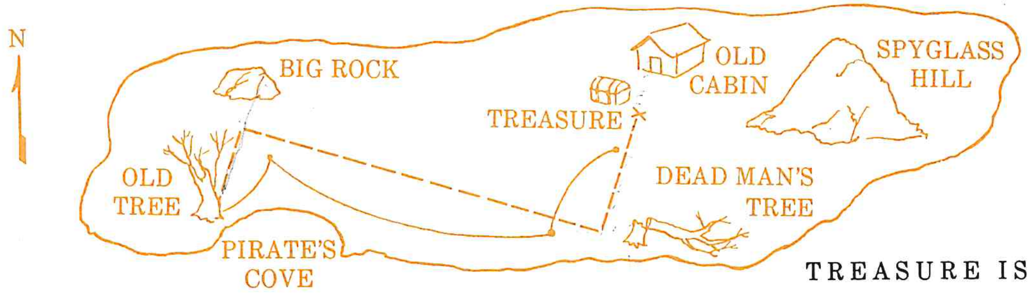
How many centimeters long is CD?

10. Which looks longer, TV or SU?

11. How many inches long is SU?

12. How many inches long is TV?

GEOMETRY: INTRODUCTION



TREASURE ISLAND

To find the treasure, the directions on the map of Treasure Island were to start at the Old Tree, walk twenty paces straight toward Big Rock, then walk 100 paces straight toward Dead Man's Tree, and finally walk straight toward the Old Cabin for thirty paces. In the picture, Jim Hawkins' path is a dotted line, and Long John Silver's path is a solid line.

1. Why do you think Long John didn't find the treasure?

In geometry we call a straight path joining two points a *line segment.*

2. Is a straight path the shortest path that can be drawn between two points?

The part of Jim's path from the Old Tree to Big Rock is a line segment.

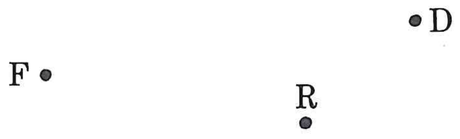
3. Describe two other parts of his path that are line segments.

We represent a point with a dot and usually name the point with a capital letter.

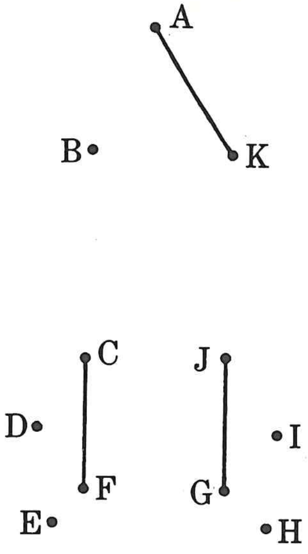
4. Copy the points and their names; then use a ruler to draw a line segment from point A to point B.

You have drawn a picture of line segment AB or line segment BA. Point A and point B are called *endpoints* of line segment AB.

5. Copy the three points shown below, and draw all the possible line segments having the given endpoints. Name the line segments.



Trace the points shown below. In alphabetical order, connect the points with line segments.



1. Draw the line segment between I and B. Does it go through point J?

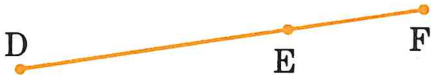
2. Do points A, J, and H all lie on line segment AH?

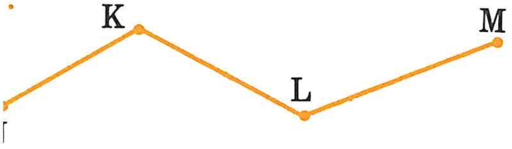
3. Do points I, J, and K all lie on line segment IK?

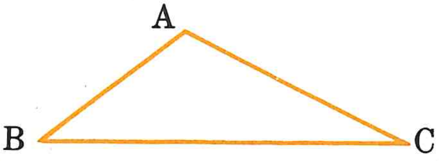
4. Draw line segment AE. Does point C lie on line segment AE?

5. The nose of the rocket in the picture is formed by two line segments. Name each line segment in two ways.

Name all of the line segments represented in each figure below. Give only one name for each segment. Do not write the words "line segment."







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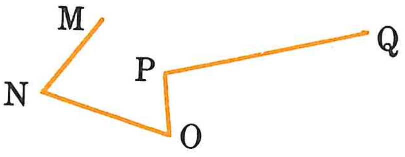

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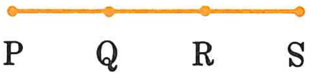

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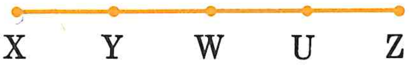
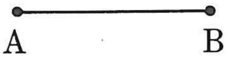
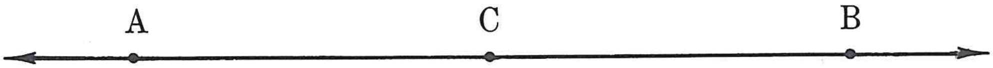


Copy the drawing of line segment AB below. Extend your drawing to the left to make a longer line segment. Now extend it to the right.

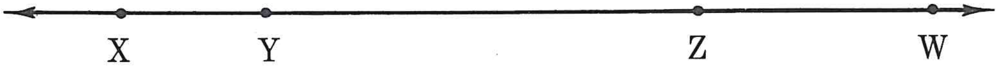


Could it be extended still farther? If a line segment is extended in both directions without stopping, it becomes a *line.* A line has no endpoints, but goes on and on without stopping. If we want to draw a picture of a line, we use arrowheads to remind us that the line goes on and on.

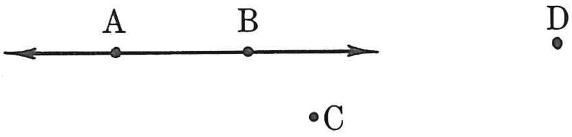
Draw a picture of a line and mark two points on it. Name the points A and B. A name for this line is written: $\overline{AB}$ or $\overline{BA}$.
Write as many names as you can for the lines pictured below.



1. $\overline{AC}$? ? ? ? ?



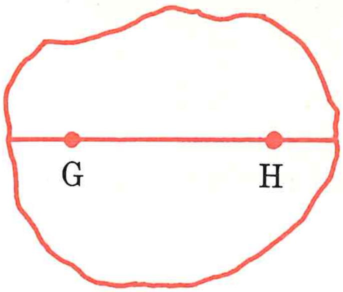
2. $\overline{YX}$? ? ? ? ? ? ? ? ? ? ?

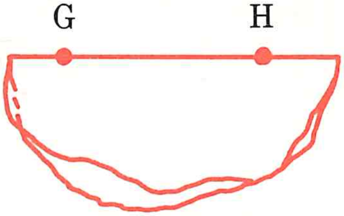


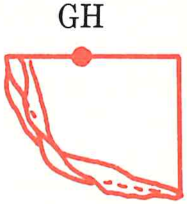
3. Which point is closer to line AB: point C or point D?

4. Which point is closer to line segment BA: point C or point D?

Draw line segment GH on a sheet of paper. Fold the paper along GH. Fold it again so that point G meets point H.



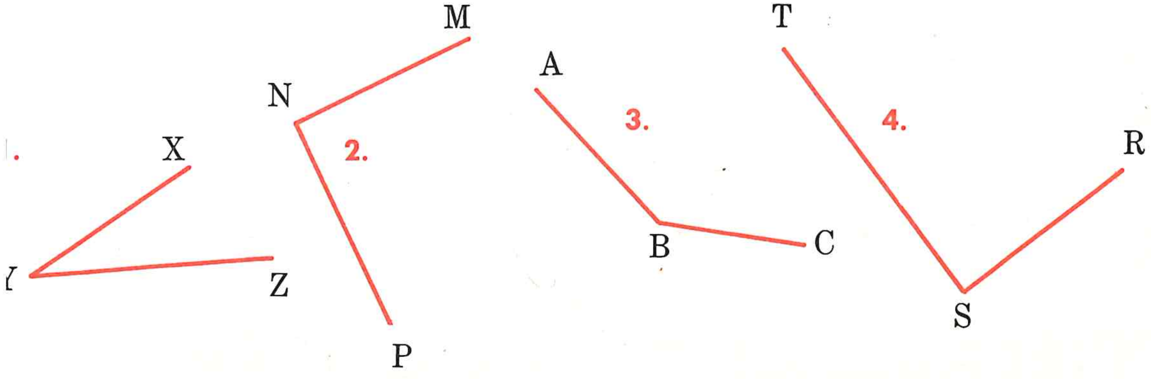




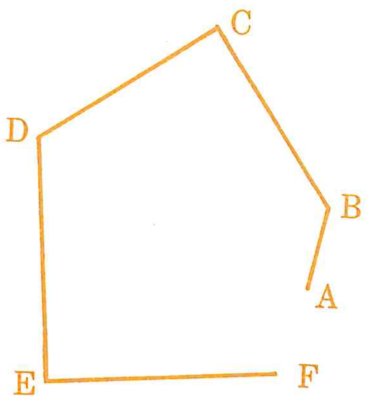
The two straight edges formed by the folds of your paper illustrate a *right angle*. Can you find two or three objects in your desk that make you think of right angles?

Use your folded paper to help you draw a right angle on another sheet of paper. Mark a point A on one line segment, and a point C on the other line segment. Find the point where the line segments meet and name this point B. The two line segments joined in this way form *right angle ABC* or *right angle CBA*. Point B lies on both line segments and is called the *vertex* of the right angle. Can you find some examples of right angles in your classroom?

Name each angle below.



5. Which of these are right angles?

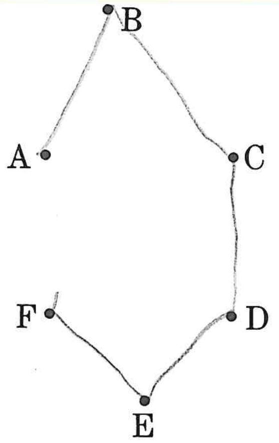


1. Name the right angles in the picture.

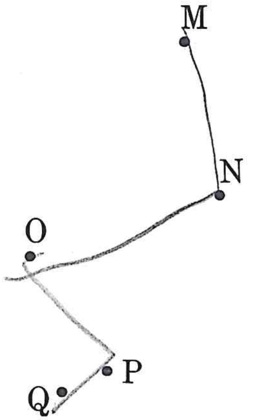
2. Are there angles in the picture that are not right angles? Name them.

Trace each set of points, then draw two angles. Name the angles.

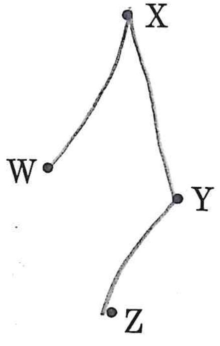
3.



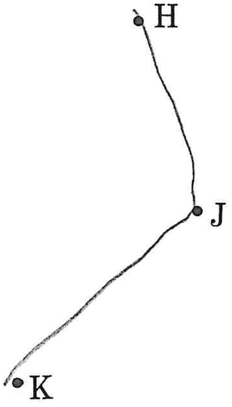
4.



5.



6.



7. Draw an angle ABC.

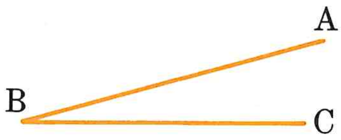
8. Draw a right angle FED.

9. Draw an angle IHG.

10. Draw a right angle MKL.

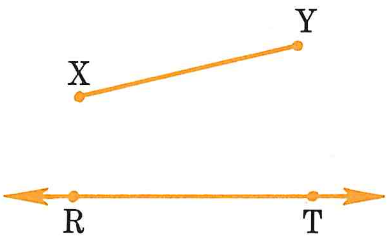
Name all the lines, line segments, and angles in each figure.

1.

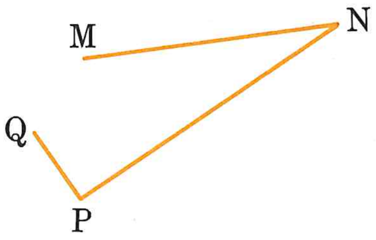


Line segments: ? ?
Angle: ?

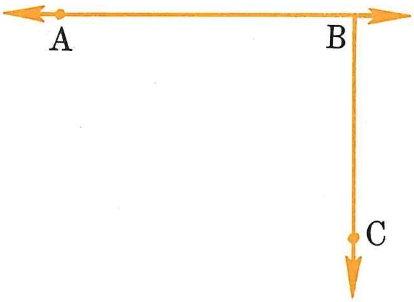
2.



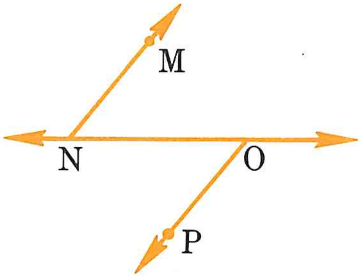
3.



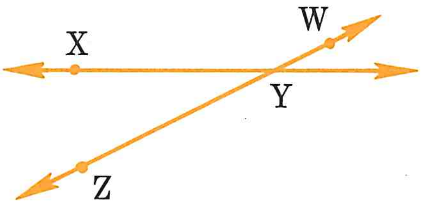
4.



5.



6.



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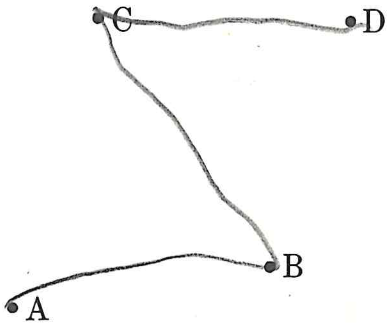
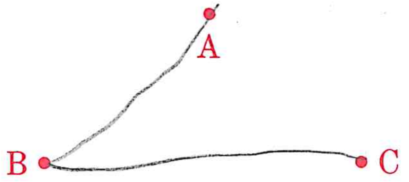
7. Copy points A, B, C, and D. Draw AB, BD, and BC. Name all the angles formed by these line segments.



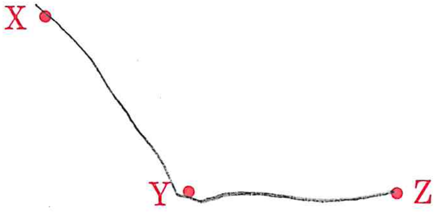
Copy points A, B, and C, and draw all possible line segments having these endpoints.



1. How many line segments did you draw? Name them.

2. How many angles are in the picture? Name the angles.

Copy points X, Y, and Z, and draw all the possible line segments with these endpoints.



3. How many line segments did you draw? Name them.

4. How many angles are formed? Name the angles.

Figures like the ones you drew are called *triangles.*

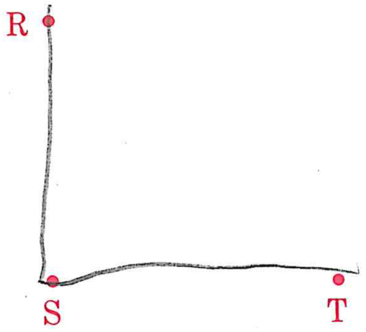
5. All triangles have __?__ sides and __?__ angles.

A name for the triangle at the top of the page is *triangle ABC.*

6. Why is triangle ABC a good name?

7. Can you give five other names for this triangle?

Trace points R, S, T, and draw all the possible line segments having these endpoints.

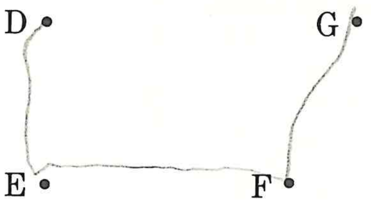


8. The figure formed is a __?__.

9. Angle RST is a __?__ angle. Triangles that have one right angle are called *right triangles.*

10. This figure could be named triangle __?__.

Copy points D, E, F, and G, and draw DE, EF, FG, and DG.



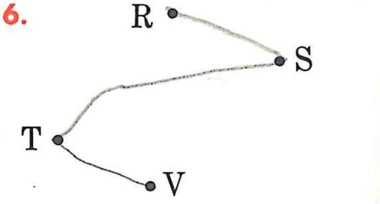
1. How many angles are there in the figure formed?
2. Name the angles formed.
3. How many sides does this figure have?
4. How many angles?

Figures with four sides and four angles such as DEFG are called *quadrilaterals*. To name a quadrilateral, begin at any vertex. Follow the line segments and name each vertex in turn.

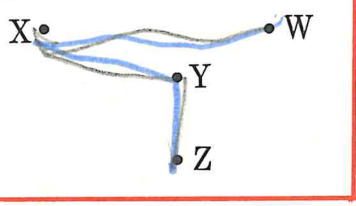
5. Write as many different names as you can for quadrilateral DEFG.

Copy the points shown below, and draw line segments to make quadrilaterals. Name the quadrilaterals.

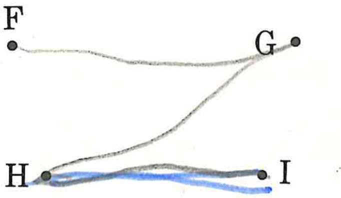
6.



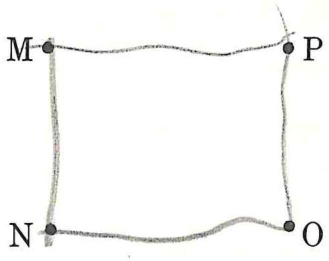
7.



8.



Trace points M, N, O, and P, and draw MN, NO, OP, and PM.

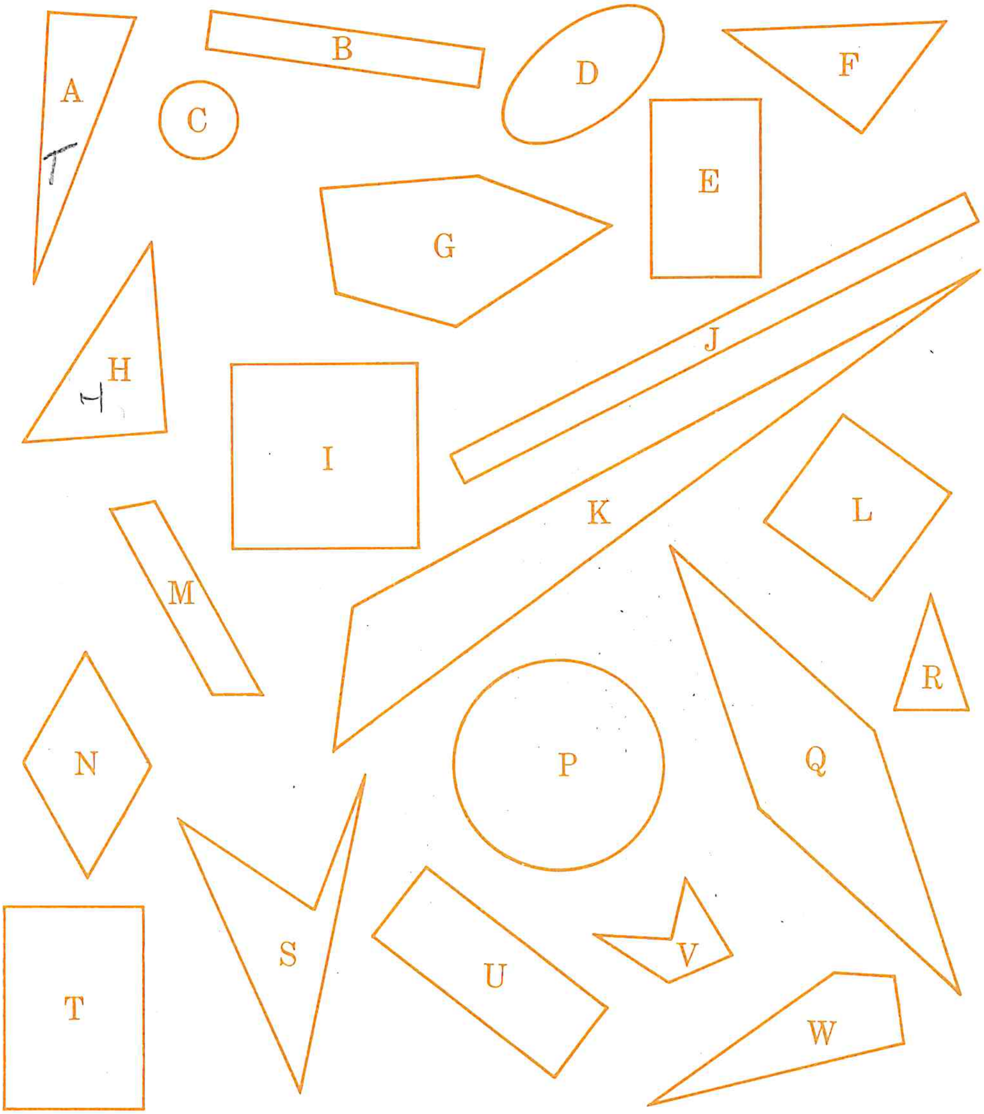


9. The figure formed has how many sides?
10. How many angles?
11. It is called a __?__.
12. What do you notice about the angles in the figure?

A quadrilateral with four right angles is called a *rectangle*. A rectangle has four sides and four right angles.

13. A name for this quadrilateral is rectangle__?__.
14. Draw triangle ABC.
15. Draw quadrilateral MNPQ.
16. Draw right triangle XYZ.
17. Draw quadrilateral EFGH.
18. Draw rectangle LMXN.
19. Draw rectangle GHKL.

1. Which are triangles?
2. Which are quadrilaterals?
3. Which are rectangles?
4. Which are not triangles, rectangles, or quadrilaterals?



5. Are some of the quadrilaterals rectangles?
6. Are all of the rectangles quadrilaterals?
7. Are all of the quadrilaterals rectangles?
8. Are all of the figures quadrilaterals or triangles?

REVIEW

Work the problems.

1. 5984 + 3248 = 9232

2. 17,653 + 9,436 + 41,849 + 23,792 = 92,730

3. 7720 − 3897 = 3823

4. 80,000 − 26,974 = 53026

5. 49,253 − 9,697

6. 75 × 8

7. 908 ×A 6

8. 46 × 97

9. 96,328 × 78

10. $9\overline{)774}$

11. $60\overline{)4920}$ 8

12. $53\overline{)2597}$

13. $94\overline{)75858}$

Copy the sentences, writing >, <, or = in place of each ○.

14. 90 ÷ 6 ○ 90 − 45

15. 171 ÷ 9 ○ 92 ÷ 4

16. 608 ÷ 8 ○ 15 × 5

17. 837 + 293 ○ 5650 ÷ 5

18. 1071 ÷ 17 ○ 62 × (10 + 8)

19. 2310 ÷ 30 ○ 684 ÷ 9

20. 2016 ÷ 42 ○ 3000 − 2962

21. 59 × 9 ○ 1593 ÷ 3

A. Which are angles?

B. Which are right angles?

C. Which are rectangles?

D. Which are quadrilaterals?

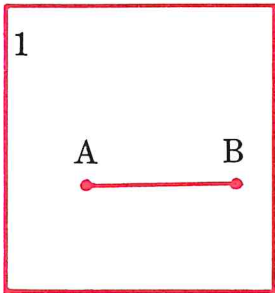
E. Which are triangles?

F. Which are lines?

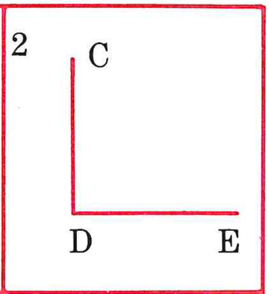
G. Which are line segments?

H. Which are right triangles?

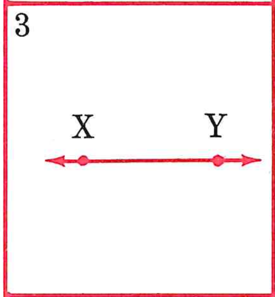
1



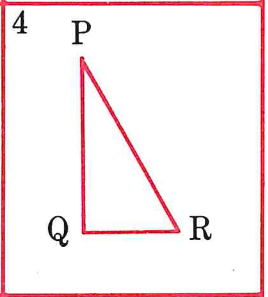
2



3



4



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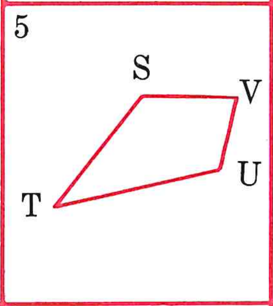

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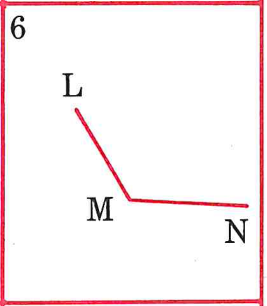
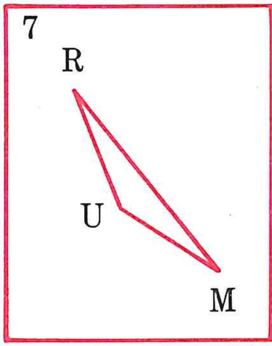
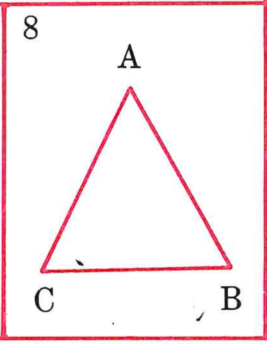


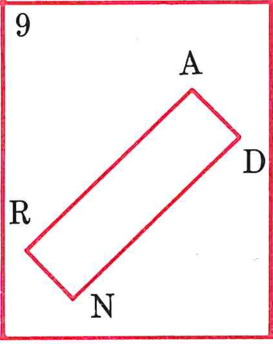
7



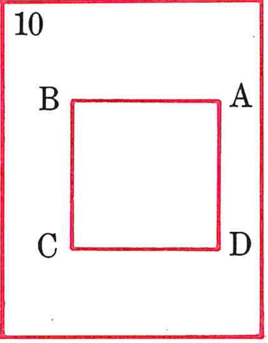
8



9



10



1. Draw angle PDQ.

2. Draw a triangle FIB.

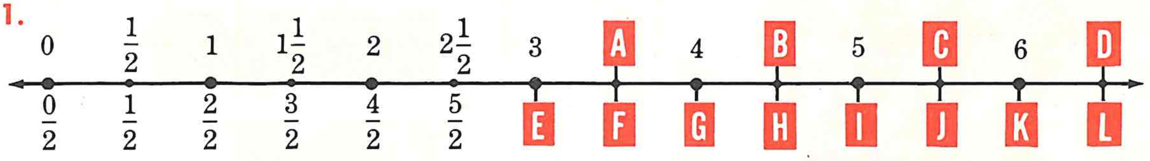
3. Draw right angle TOP.

4. Draw a right triangle LUM.

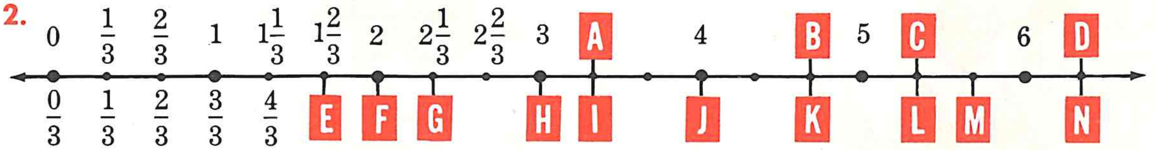
FRACTIONAL NUMBERS GREATER THAN ONE

Write a common or mixed fraction for each lettered point.

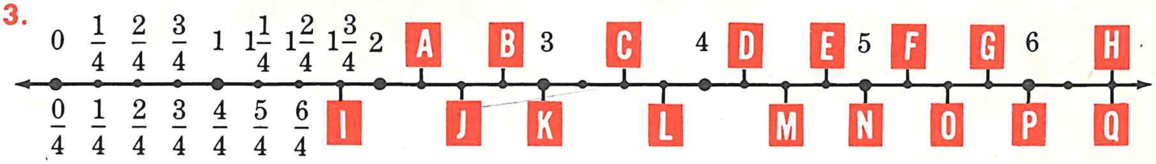
1.



2.



3.



Copy and complete each sentence, writing >, <, or = in place of the ○.

4. $\frac{2}{2} \bigcirc \frac{4}{2}$

5. $\frac{1}{2} \bigcirc \frac{2}{2}$

6. $2\frac{1}{2} \bigcirc \frac{5}{2}$

7. $\frac{6}{2} \bigcirc 3\frac{1}{2}$

8. $4\frac{1}{2} \bigcirc \frac{9}{2}$

9. $5 \bigcirc \frac{11}{2}$

10. $6 \bigcirc \frac{12}{2}$

11. $3 \bigcirc \frac{5}{2}$

12. $\frac{2}{3} \bigcirc \frac{9}{3}$

13. $\frac{1}{3} \bigcirc \frac{2}{3}$

14. $2\frac{1}{3} \bigcirc \frac{7}{3}$

15. $\frac{6}{3} \bigcirc 2\frac{1}{3}$

16. $3\frac{2}{3} \bigcirc \frac{7}{3}$

17. $5 \bigcirc \frac{16}{3}$

18. $6\frac{1}{3} \bigcirc \frac{19}{3}$

19. $5\frac{1}{3} \bigcirc \frac{17}{3}$

20. $\frac{8}{4} \bigcirc \frac{4}{4}$

21. $\frac{1}{4} \bigcirc \frac{2}{4}$

22. $5 \bigcirc \frac{20}{4}$

23. $\frac{7}{4} \bigcirc \frac{9}{4}$

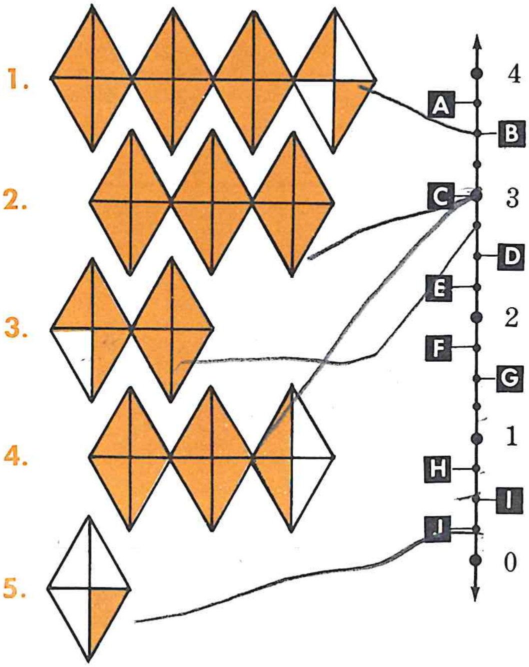
24. $\frac{11}{4} \bigcirc 3$

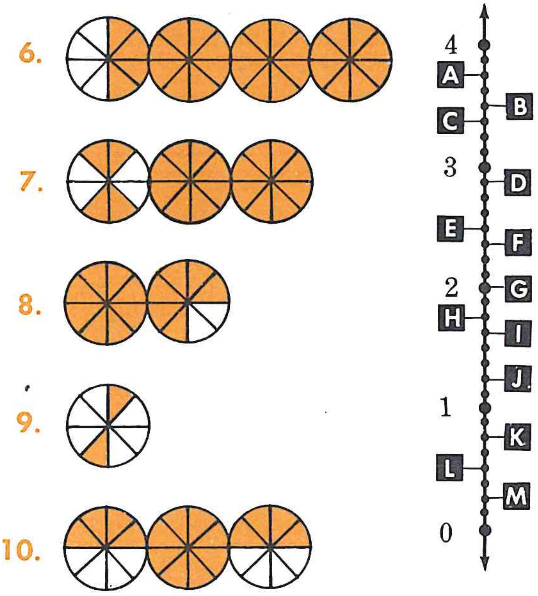
25. $3 \bigcirc \frac{12}{4}$

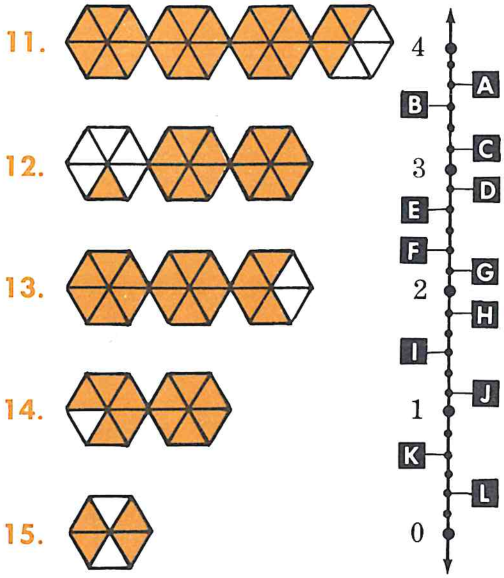
26. $5\frac{1}{4} \bigcirc \frac{19}{4}$

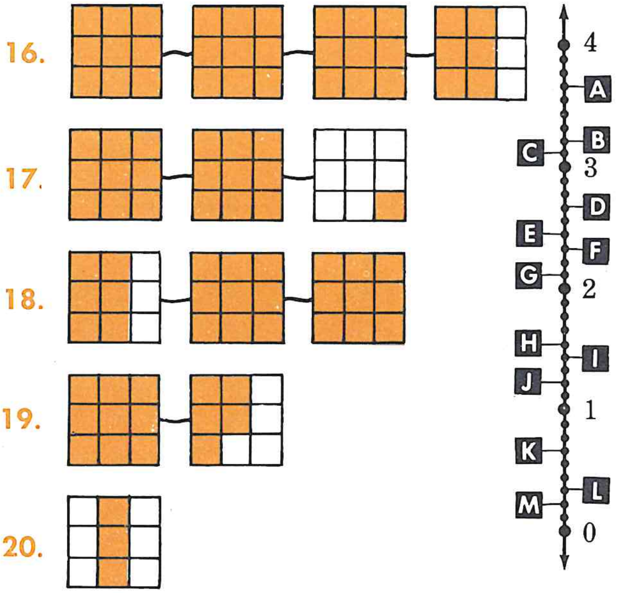
27. $3\frac{1}{2} \bigcirc \frac{3}{4}$

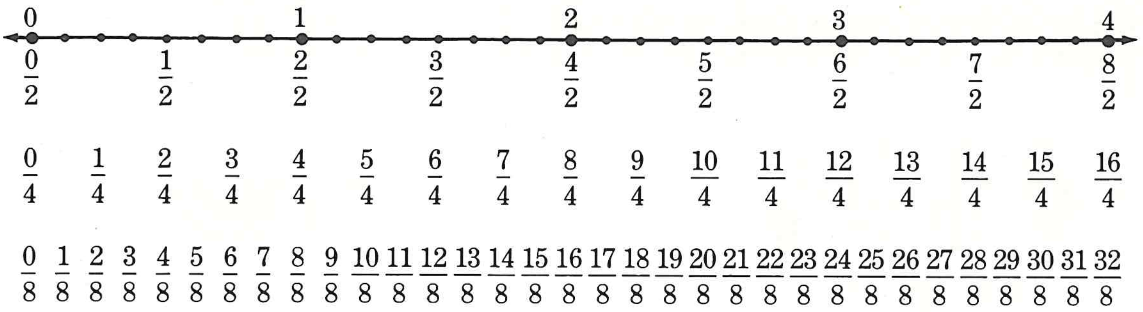
Each region picture can be matched with a lettered point on the number line. Write the letter and the fraction for each.










0
1
2
3
4
$\frac{0}{2}$ $\frac{1}{2}$ $\frac{2}{2}$ $\frac{3}{2}$ $\frac{4}{2}$ $\frac{5}{2}$ $\frac{6}{2}$ $\frac{7}{2}$ $\frac{8}{2}$
$\frac{0}{4}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{5}{4}$ $\frac{6}{4}$ $\frac{7}{4}$ $\frac{8}{4}$ $\frac{9}{4}$ $\frac{10}{4}$ $\frac{11}{4}$ $\frac{12}{4}$ $\frac{13}{4}$ $\frac{14}{4}$ $\frac{15}{4}$ $\frac{16}{4}$
$\frac{0}{8}$ $\frac{1}{8}$ $\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$ $\frac{8}{8}$ $\frac{9}{8}$ $\frac{10}{8}$ $\frac{11}{8}$ $\frac{12}{8}$ $\frac{13}{8}$ $\frac{14}{8}$ $\frac{15}{8}$ $\frac{16}{8}$ $\frac{17}{8}$ $\frac{18}{8}$ $\frac{19}{8}$ $\frac{20}{8}$ $\frac{21}{8}$ $\frac{22}{8}$ $\frac{23}{8}$ $\frac{24}{8}$ $\frac{25}{8}$ $\frac{26}{8}$ $\frac{27}{8}$ $\frac{28}{8}$ $\frac{29}{8}$ $\frac{30}{8}$ $\frac{31}{8}$ $\frac{32}{8}$

Copy and complete each sentence, writing >, <, or = in place of the ○.

1. $\frac{3}{8} \bigcirc \frac{2}{4}$

2. $\frac{8}{8} \bigcirc \frac{5}{4}$

3. $\frac{7}{4} \bigcirc \frac{13}{8}$

4. $\frac{15}{8} \bigcirc \frac{4}{2}$

5. $\frac{25}{8} \bigcirc \frac{6}{2}$

6. $\frac{26}{8} \bigcirc \frac{7}{2}$

Copy and complete.
Use the number line.

7. $1 = \frac{2}{2} = \frac{4}{4} = \frac{8}{8}$

8. $2 = \underline{?} = \underline{?} = \underline{?}$

9. $1\frac{1}{2} = \underline{?} = \underline{?} = \underline{?}$

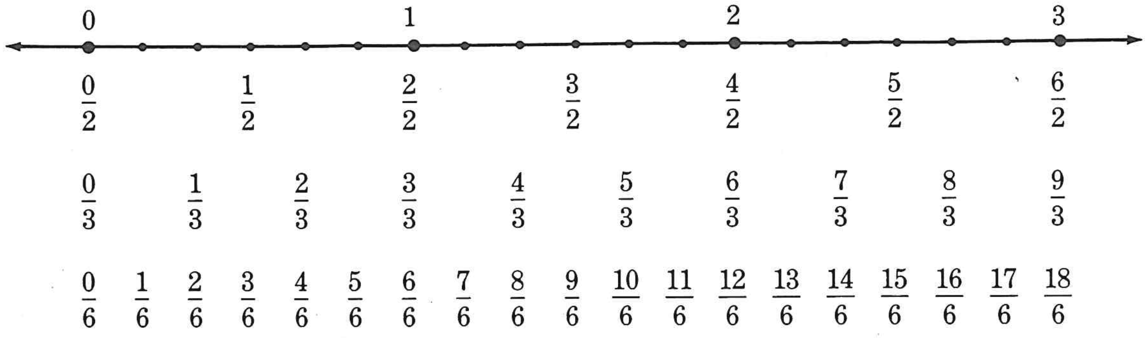
10. $3 = \underline{?} = \underline{?} = \underline{?}$

11. $4 = \underline{?} = \underline{?} = \underline{?}$

12. $2\frac{1}{2} = \underline{?} = \underline{?} = \underline{?}$

Copy and complete each equation.

	A	**B**	**C**	**D**
3.	$\frac{1}{2} + \frac{1}{2} = \underline{?}$	$\frac{6}{4} + \frac{1}{4} = \underline{?}$	$\frac{1}{4} + \frac{2}{2} = \underline{?}$	$\frac{9}{8} + \frac{1}{4} = \underline{?}$
4.	$\frac{2}{2} - \frac{1}{2} = \underline{?}$	$\frac{8}{4} - \frac{1}{4} = \underline{?}$	$\frac{21}{8} - \frac{4}{2} = \underline{?}$	$\frac{12}{4} - \frac{3}{2} = \underline{?}$
5.	$\frac{3}{2} + \frac{4}{2} = \underline{?}$	$\frac{3}{4} + \frac{1}{2} = \underline{?}$	$\frac{7}{8} + \frac{2}{4} = \underline{?}$	$\frac{11}{8} + \frac{1}{2} = \underline{?}$
6.	$\frac{7}{4} - \frac{2}{4} = \underline{?}$	$\frac{9}{8} - \frac{2}{8} = \underline{?}$	$\frac{13}{4} - \frac{3}{8} = \underline{?}$	$\frac{10}{4} - \frac{3}{8} = \underline{?}$



Copy and complete each sentence, writing >, <, or = in place of the ○.

1. $\frac{3}{3}$ ○ $\frac{6}{3}$

2. $\frac{15}{6}$ ○ $\frac{14}{6}$

3. $\frac{11}{6}$ ○ $\frac{5}{3}$

4. $\frac{3}{2}$ ○ $\frac{10}{6}$

5. $\frac{6}{2}$ ○ $\frac{18}{6}$

6. $\frac{7}{3}$ ○ $\frac{14}{6}$

Copy and complete.
Use the number line.

7. $\frac{2}{3} = \underline{\ ?\ }$

8. $\frac{5}{3} = \underline{\ ?\ }$

9. $\frac{16}{6} = \underline{\ ?\ }$

10. $0 = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

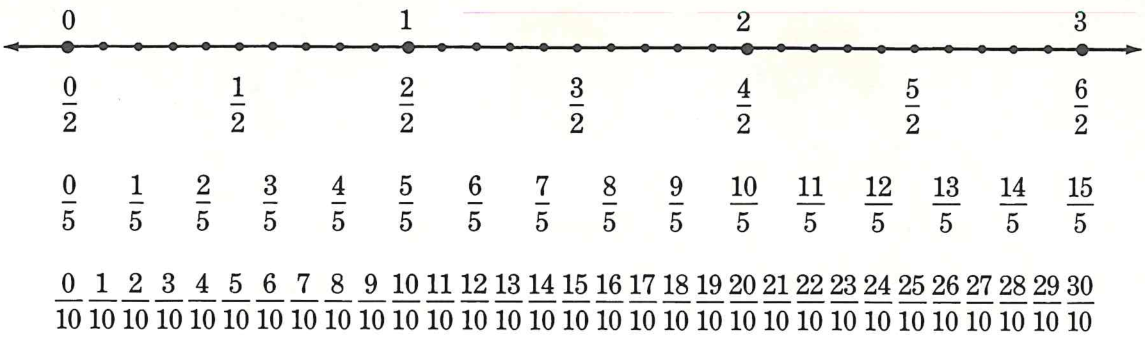
11. $1 = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

12. $2 = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

13. $3 = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

Copy and complete each equation.

	A	**B**	**C**	**D**
14.	$\frac{2}{3} + \frac{1}{3} = \underline{\ ?\ }$	$\frac{6}{6} + \frac{1}{6} = \underline{\ ?\ }$	$\frac{7}{6} + \frac{1}{2} = \underline{\ ?\ }$	$\frac{4}{3} + \frac{1}{2} = \underline{\ ?\ }$
15.	$\frac{3}{3} - \frac{1}{3} = \underline{\ ?\ }$	$\frac{7}{6} - \frac{2}{6} = \underline{\ ?\ }$	$\frac{15}{6} - \frac{1}{3} = \underline{\ ?\ }$	$\frac{3}{2} - \frac{4}{3} = \underline{\ ?\ }$
16.	$\frac{4}{3} + \frac{1}{3} = \underline{\ ?\ }$	$\frac{3}{2} + \frac{5}{6} = \underline{\ ?\ }$	$\frac{10}{6} + \frac{2}{3} = \underline{\ ?\ }$	$\frac{2}{2} + \frac{5}{3} = \underline{\ ?\ }$
17.	$\frac{5}{6} - \frac{1}{6} = \underline{\ ?\ }$	$\frac{4}{2} - \frac{4}{6} = \underline{\ ?\ }$	$\frac{14}{6} - \frac{4}{3} = \underline{\ ?\ }$	$\frac{7}{3} - \frac{1}{2} = \underline{\ ?\ }$



Copy and complete each sentence, writing >, <, or = in place of the ○.

1. $\frac{9}{10}$ ○ $\frac{4}{5}$

2. $\frac{7}{5}$ ○ $\frac{14}{10}$

3. $\frac{5}{2}$ ○ $\frac{13}{5}$

4. $\frac{3}{2}$ ○ $\frac{14}{10}$

5. $\frac{6}{2}$ ○ $\frac{30}{10}$

6. $\frac{5}{2}$ ○ $\frac{26}{10}$

Copy and complete.
Use the number line.

7. $\frac{1}{2} =$?

8. $\frac{9}{5} =$?

9. 0 = ? = ? = ?

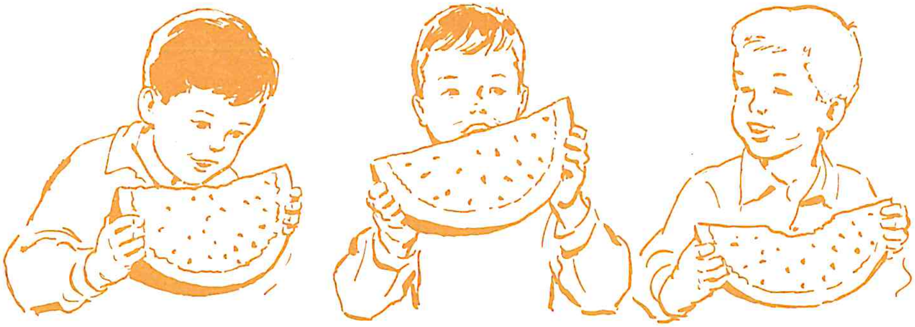
10. 1 = ? = ? = ?

11. 2 = ? = ? = ?

12. 3 = ? = ? = ?

Copy and complete each equation.

	A	**B**	**C**	**D**
13.	$\frac{6}{5} + \frac{1}{5} =$?	$\frac{13}{10} + \frac{11}{10} =$?	$\frac{3}{2} + \frac{11}{10} =$?	$\frac{1}{2} + \frac{7}{5} =$?
14.	$\frac{8}{5} - \frac{2}{5} =$?	$\frac{15}{10} - \frac{12}{10} =$?	$\frac{5}{2} - \frac{3}{10} =$?	$\frac{1}{2} - \frac{1}{5} =$?
15.	$\frac{11}{5} + \frac{4}{5} =$?	$\frac{1}{10} + \frac{3}{2} =$?	$\frac{13}{10} + \frac{2}{2} =$?	$\frac{5}{2} + \frac{3}{10} =$?
16.	$\frac{18}{10} - \frac{5}{10} =$?	$\frac{13}{10} - \frac{1}{2} =$?	$\frac{27}{10} - \frac{3}{2} =$?	$\frac{6}{2} - \frac{10}{10} =$?



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. John rode his bicycle $1\frac{9}{10}$ miles. Tom rode his bicycle $1\frac{4}{5}$ miles. Who rode farther? How much farther?

2. Bob ate $\frac{1}{2}$ of a watermelon. Jim ate $\frac{3}{8}$ of a watermelon. Sam ate as much as Jim. How much watermelon did all three boys eat?

3. Judy needed $1\frac{1}{2}$ cups of milk to make a cake. One milk bottle had $\frac{3}{4}$ of a cup of milk in it. How much more did she need?

4. For her birthday, Jane got $1\frac{1}{2}$ pounds of candy from Jan and $2\frac{1}{2}$ pounds from Karen. How much candy did she get from Karen and Jan?

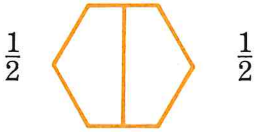
5. A post of a jungle gym is set into the ground $1\frac{1}{3}$ feet. Ken measured the length above the ground. It was $6\frac{1}{2}$ feet. How long was the post?

6. On Monday, Jack walked to school in $7\frac{1}{2}$ minutes, and ran home in $3\frac{3}{4}$ minutes. How long did it take him to make both trips?

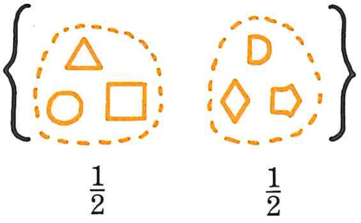
Jim said, "One-half is a very funny number. I can think about it in so many different ways."

"What do you mean?" Mark asked.

"Well, I can think about 1 region split into 2 parts of the same size," said Jim. "Each part is $\frac{1}{2}$ of the whole region." Jim drew this picture:

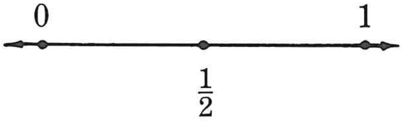


"I can also think about 1 set partitioned into 2 disjoint subsets with the same number of elements in each. Each subset is $\frac{1}{2}$ of the whole set," Jim explained. He drew this picture:

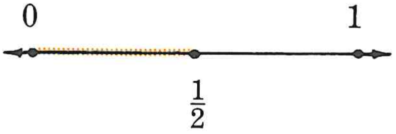


"How about the number line?" said Mark.

"I think about $\frac{1}{2}$ as the number for the point that is halfway between 0 and 1." He drew this picture:

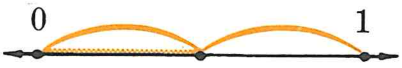


"The reason you can call that point $\frac{1}{2}$ is that you have split the distance from 0 to 1 into two parts of the same length and each part is $\frac{1}{2}$ of the whole distance," Jim explained. He showed Mark what he meant by drawing this picture:



Mark said, "All of these methods make me think of division."

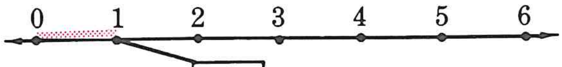
"Yes," said Jim. "We can think of $1 \div 2$ as another name for $\frac{1}{2}$."



$1 \div 2 = \frac{1}{2}$

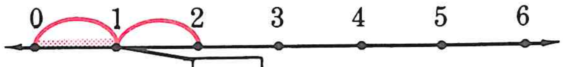
"If 1 ÷ 2 and $\frac{1}{2}$ both name the same number," Mark said, "then 2 ÷ 2 and $\frac{2}{2}$ should both name the same number. We know that $\frac{1}{2}$ and $\frac{1}{2}$ are $\frac{2}{2}$, or 1."

Jim said, "We can show this on the number line." He drew this picture:



$$\frac{1}{2} + \frac{1}{2} = \boxed{\frac{2}{2}} = 1$$

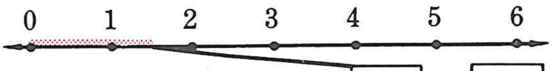
"We also know that 2 ÷ 2 is 1. Since 1 is another name for $\frac{2}{2}$, then 2 ÷ 2 and $\frac{2}{2}$ name the same number." He drew this picture:



$$2 \div 2 = \boxed{\frac{2}{2}} = 1$$

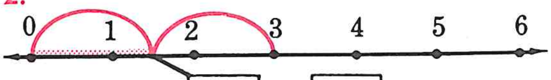
Copy and complete each equation.

1.



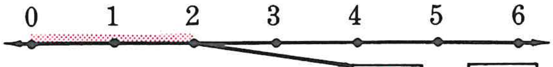
$$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \boxed{\frac{?}{2}} = \boxed{1\frac{1}{2}}$$

2.



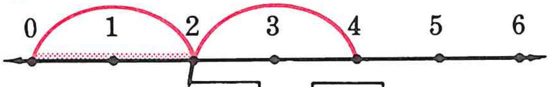
$$3 \div 2 = \boxed{\frac{?}{?}} = \boxed{?}$$

3.



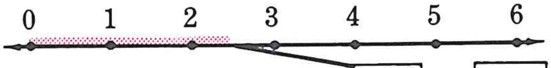
$$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \boxed{\frac{?}{?}} = \boxed{?}$$

4.



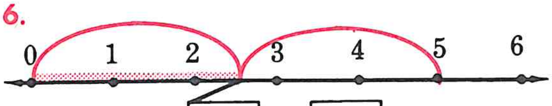
$$4 \div 2 = \boxed{\frac{?}{?}} = \boxed{?}$$

5.



$$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \boxed{\frac{?}{?}} = \boxed{?}$$

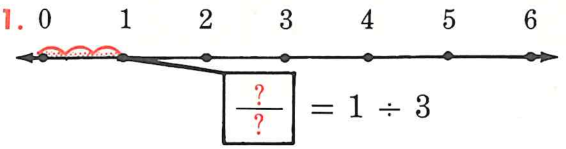
6.



$$5 \div 2 = \boxed{\frac{?}{?}} = \boxed{?}$$

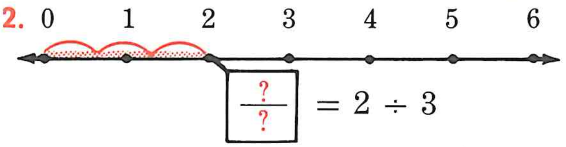
Copy and complete each equation.

1.



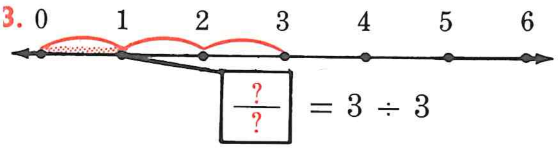
$\frac{?}{?} = 1 \div 3$

2.



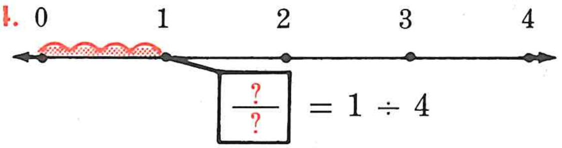
$\frac{?}{?} = 2 \div 3$

3.



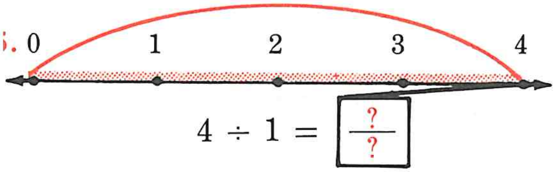
$\frac{?}{?} = 3 \div 3$

4.



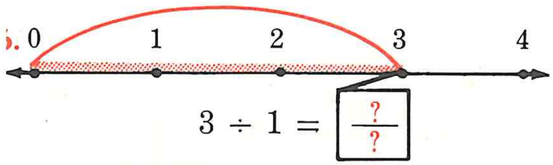
$\frac{?}{?} = 1 \div 4$

5.



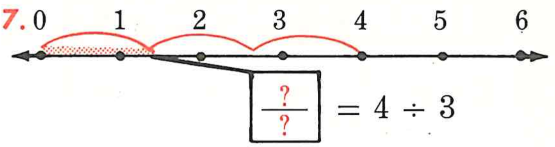
$4 \div 1 = \frac{?}{?}$

6.



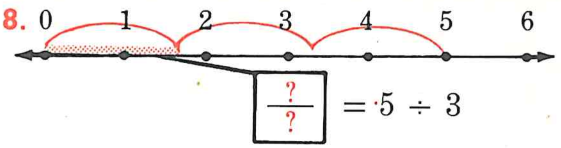
$3 \div 1 = \frac{?}{?}$

7.



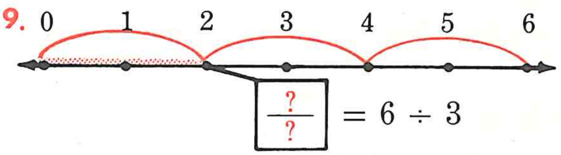
$\frac{?}{?} = 4 \div 3$

8.



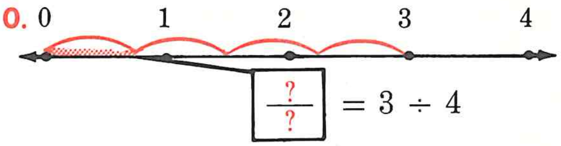
$\frac{?}{?} = 5 \div 3$

9.



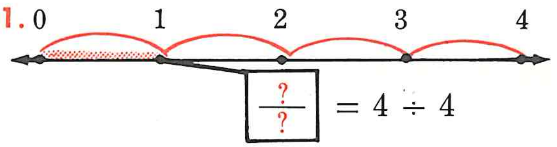
$\frac{?}{?} = 6 \div 3$

10.



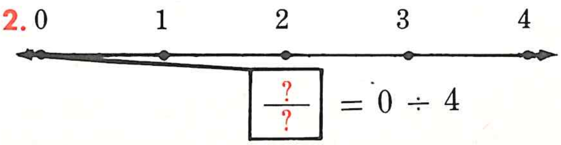
$\frac{?}{?} = 3 \div 4$

11.



$\frac{?}{?} = 4 \div 4$

12.



$\frac{?}{?} = 0 \div 4$

Copy and complete.

1. $\frac{1}{6} = \underline{\ ?\ } \div 6$
2. $\frac{6}{1} = 6 \div \underline{\ ?\ }$
3. $\frac{8}{3} = \underline{\ ?\ } \div \underline{\ ?\ }$
4. $\frac{5}{7} = \underline{\ ?\ } \div \underline{\ ?\ }$
5. $\frac{7}{5} = \underline{\ ?\ } \div \underline{\ ?\ }$
6. $\frac{0}{9} = \underline{\ ?\ } \div \underline{\ ?\ }$

For each story problem, write an equation and solve it. Then write a sentence to answer the question.

7. Ted and Kip had 3 candy bars. If the 2 boys shared equally, how much candy did each of them get?

8. Alice had 2 yards of pink cloth to make doll dresses. She cut the cloth into 4 equal pieces. What size was each piece?

9. Mrs. Bing used 2 cups of sugar to make 3 pies of the same size. About how much sugar was used in each pie?

10. Gene and his 5 friends ate a whole cake. If each got the same size piece, how much of the cake did Gene eat?

11. Mrs. Woodburn had a dinner party for 10 people. She divided 2 pies equally among her guests. What part of a pie was each person served?

12. John's mother had 5 apples. John and his 3 friends divided them equally. How many apples did each boy get?

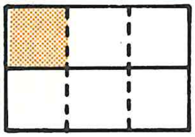
13. Carol and her 3 friends shared equally 10 sheets of art paper. How many sheets did each girl have?

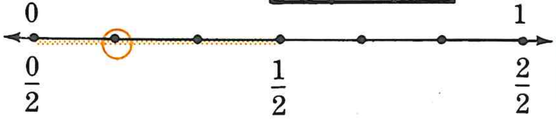
14. Sybil got 12 pills from the doctor. He told her to take 3 pills a day. How many days will the pills last?

MULTIPLICATION OF FRACTIONAL NUMBERS

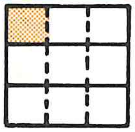
opy and complete each equation.

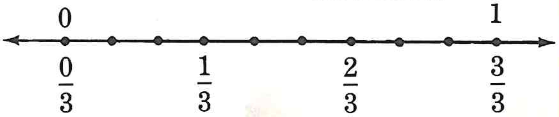
. $\frac{1}{3}$ of $\frac{1}{2}$ = $\frac{1}{6}$



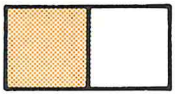


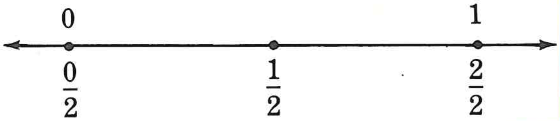
2. $\frac{1}{3}$ of $\frac{1}{3}$ = $\frac{1}{9}$



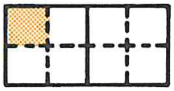


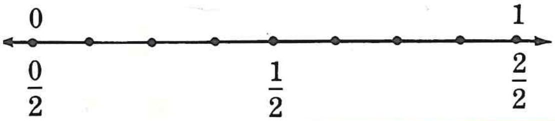
3. $\frac{1}{2}$ of $\frac{2}{2}$ = $\frac{2}{4}$



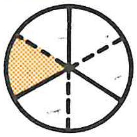


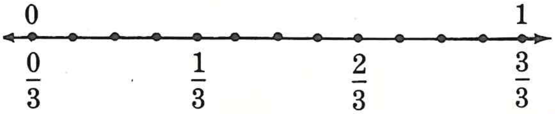
. $\frac{1}{4}$ of $\frac{1}{2}$ = $\frac{1}{8}$



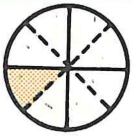


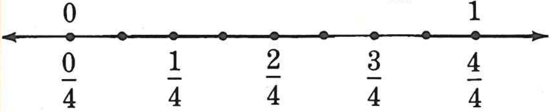
. $\frac{2}{4}$ of $\frac{1}{3}$ = $\frac{2}{12}$



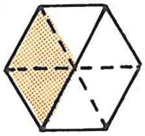


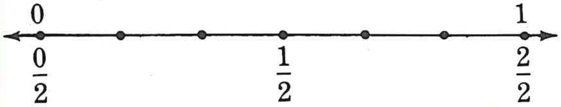
6. $\frac{1}{2}$ of $\frac{1}{4}$ = $\frac{1}{8}$



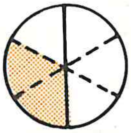


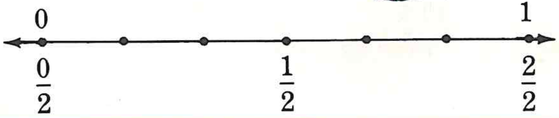
7. $\frac{2}{3}$ of $\frac{1}{2}$ = $\frac{2}{6}$



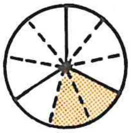


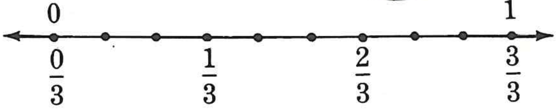
8. $\frac{1}{3}$ of $\frac{2}{2}$ = $\frac{2}{4}$



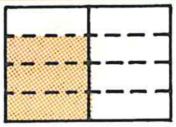


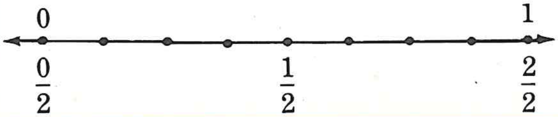
9. $\frac{2}{3}$ of $\frac{1}{3}$ = $\frac{2}{9}$



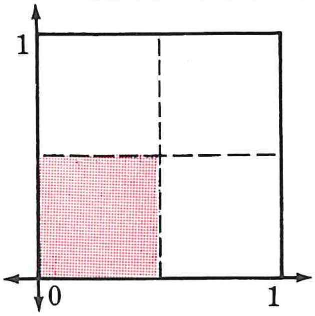


10. $\frac{3}{4}$ of $\frac{1}{2}$ = ?



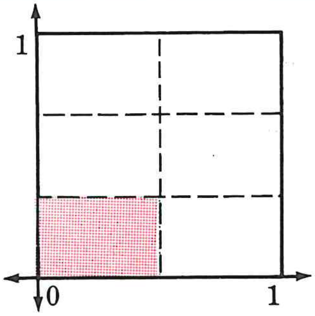


Copy and complete each numbered sentence.



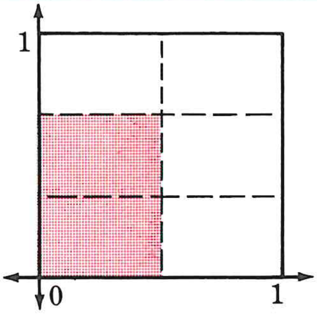
1. $\frac{1}{2}$ of $\frac{1}{2}$ is ? .

2. $\frac{1}{2} \times \frac{1}{2} =$ $\frac{2}{4}$



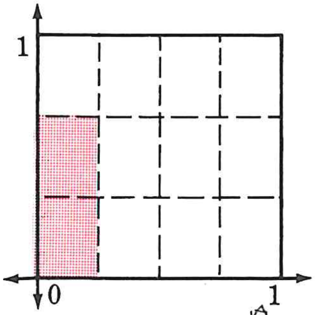
3. $\frac{1}{3}$ of $\frac{1}{2}$ is ? .

4. $\frac{1}{3} \times \frac{1}{2} =$ $\frac{1}{6}$



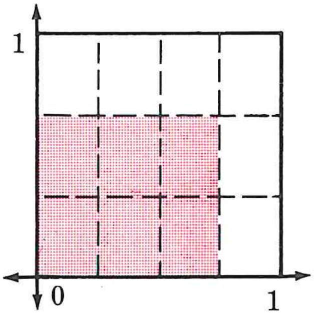
5. $\frac{2}{3}$ of $\frac{1}{2}$ is ? .

6. $\frac{2}{3} \times \frac{1}{2} =$ $\frac{2}{6}$



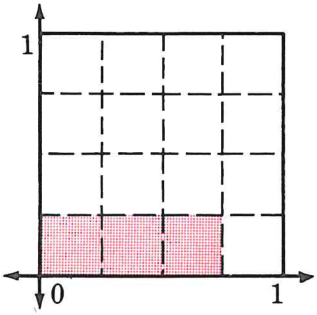
7. $\frac{2}{3}$ of $\frac{1}{4}$ is $\frac{2}{12}$.

8. $\frac{2}{3} \times \frac{1}{4} =$ $\frac{2}{12}$



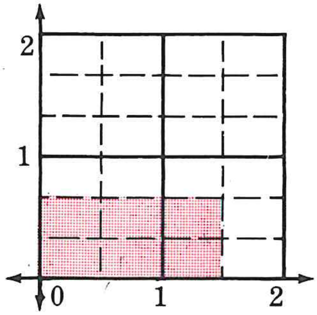
9. $\frac{2}{3}$ of $\frac{3}{4}$ is ? .

10. $\frac{2}{3} \times \frac{3}{4} =$ $\frac{6}{12}$



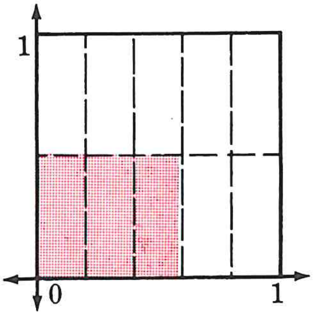
11. $\frac{1}{4}$ of $\frac{3}{4}$ is ? .

12. $\frac{1}{4} \times \frac{3}{4} =$ $\frac{3}{12}$



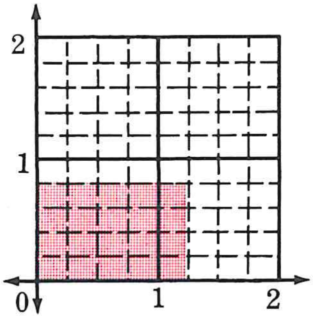
13. $\frac{2}{3}$ of $\frac{3}{2}$ is ? .

14. $\frac{2}{3} \times \frac{3}{2} =$ 1



15. $\frac{1}{2}$ of $\frac{3}{5}$ is $\frac{3}{10}$.

16. $\frac{1}{2} \times \frac{3}{5} =$ $\frac{3}{10}$

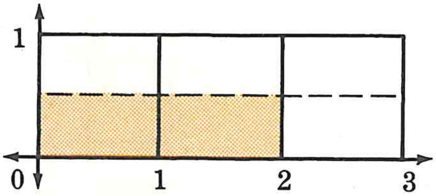


17 $\frac{4}{5}$ of $\frac{5}{4}$ is ? .

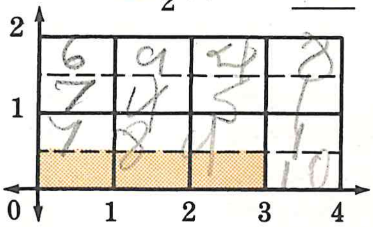
18. $\frac{4}{5} \times \frac{5}{4} =$ 1

Copy and complete each equation.

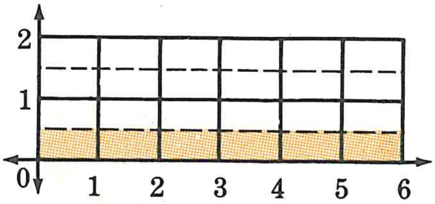
1. $\frac{1}{2} \times 2 = \underline{\ ?\ }$



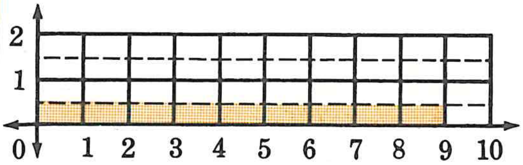
2. $\frac{1}{2} \times 3 = \underline{\ ?\ }$



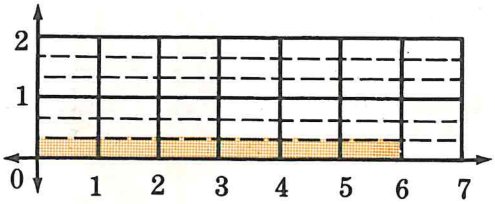
3. $\frac{1}{2} \times 6 = \underline{\ ?\ }$



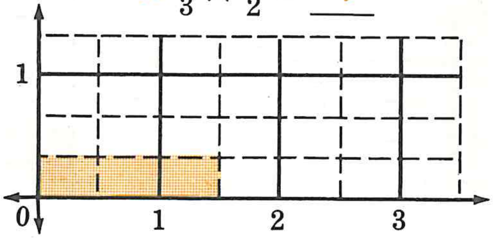
4. $\frac{1}{2} \times 9 = \underline{\ ?\ }$



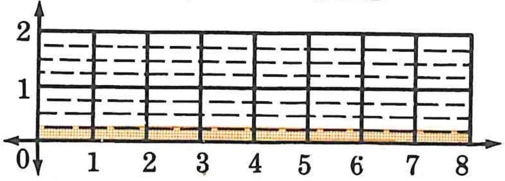
5. $\frac{1}{3} \times 6 = \underline{\ ?\ }$



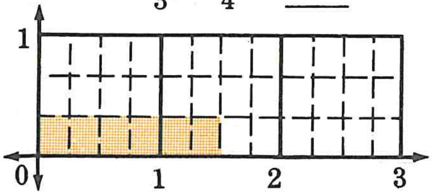
6. $\frac{1}{3} \times \frac{3}{2} = \underline{\ ?\ }$



7. $\frac{1}{4} \times 8 = \underline{\ ?\ }$



8. $\frac{1}{3} \times \frac{6}{4} = \underline{\ ?\ }$

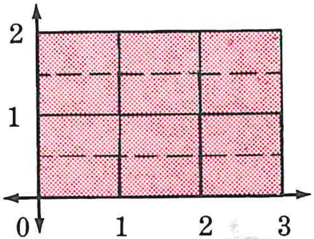


Write an equation and solve it to answer each question.

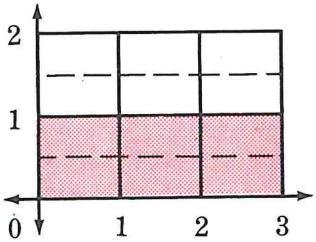
Terry washed $\frac{1}{5}$ of the 20 cups after his mother's company left. How many cups did Terry wash?

Jerry wanted to share 5 candy bars among 7 boys. Jerry said, "Each boy will get $\frac{1}{7}$ of 5." What part of a whole candy bar did each boy get?

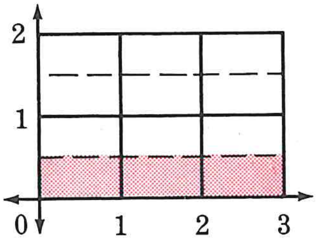
Copy and complete each equation.



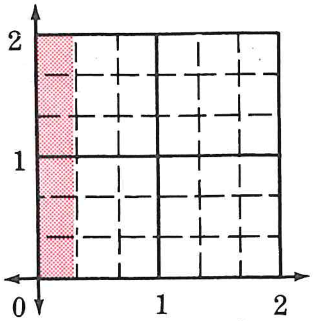
1. $\frac{4}{2} \times \frac{3}{1} = \underline{?}$ 6



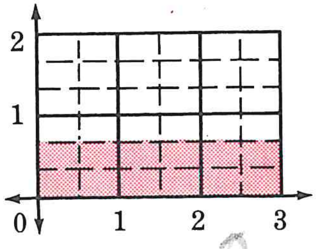
2. $\frac{2}{2} \times \frac{3}{1} = \underline{?}$ 3



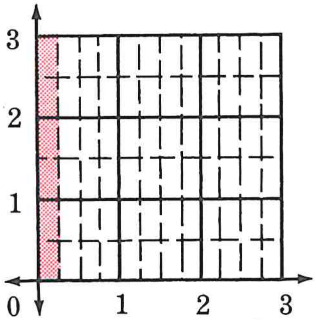
3. $\frac{1}{2} \times \frac{3}{1} = \underline{?}$ $1\frac{1}{2}$



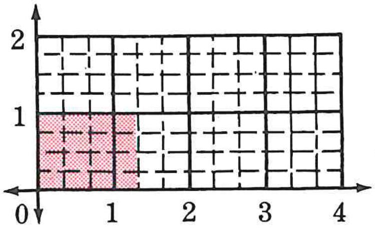
4. $\frac{6}{3} \times \frac{1}{3} = \underline{?}$ $\frac{6}{9}$



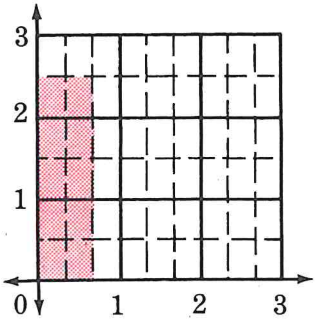
5. $\frac{2}{3} \times \frac{6}{2} = \underline{?}$ 2



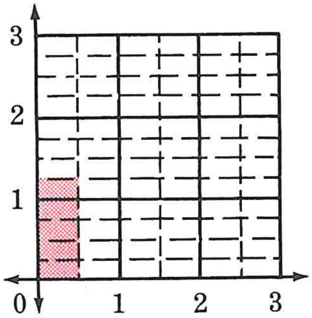
6. $\frac{6}{2} \times \frac{1}{4} = \underline{?}$ $1\frac{2}{4}$



7. $\frac{3}{4} \times \frac{4}{3} = \underline{?}$ 1

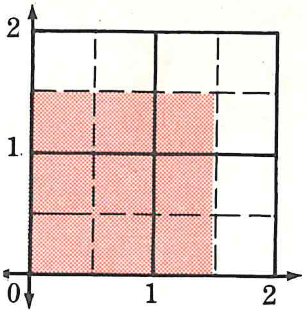


8. $\frac{5}{2} \times \frac{2}{3} = \underline{?}$ $1\frac{2}{3}$

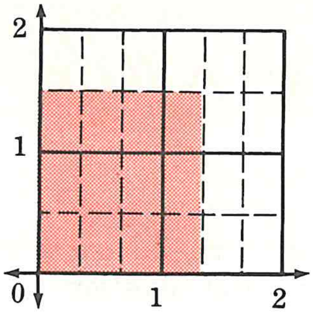


9. $\frac{5}{4} \times \frac{1}{2} = \underline{?}$ 1 [illegible]

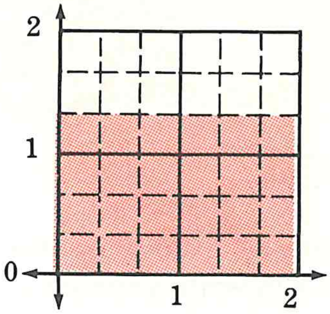
Copy and complete each equation.



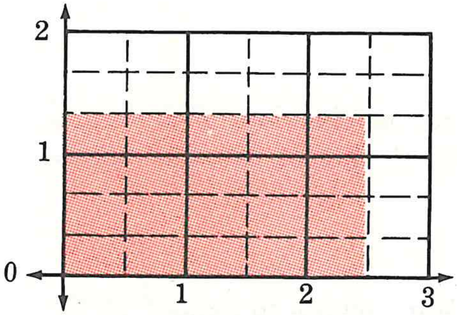
1. $\frac{3}{2} \times \frac{3}{2} = \underline{\ ?\ }$



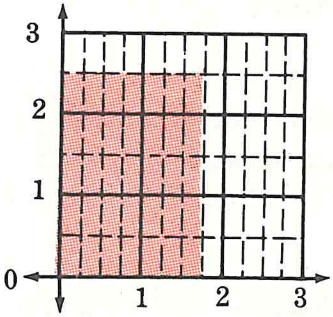
2. $\frac{3}{2} \times \frac{4}{3} = \underline{\ ?\ }$



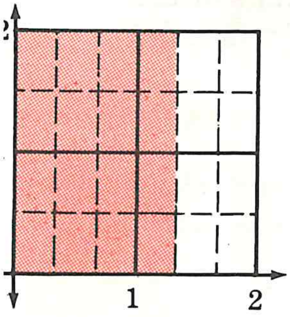
3. $\frac{4}{3} \times \frac{6}{3} = \underline{\ ?\ }$



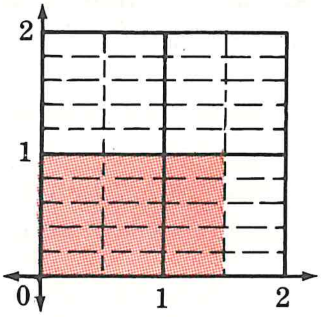
4. $\frac{4}{3} \times \frac{5}{2} = \underline{\ ?\ }$



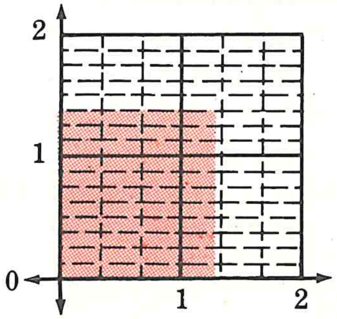
5. $\frac{5}{2} \times \frac{7}{4} = \underline{\ ?\ }$



6. $\frac{4}{2} \times \frac{4}{3} = \underline{\ ?\ }$



7. $\frac{6}{5} \times \frac{3}{2} = \underline{\ ?\ }$



8. $\frac{11}{8} \times \frac{4}{3} = \underline{\ ?\ }$

Tanya
+
Jonathan

For each story problem, write an equation and solve it.
Then write a sentence to answer each question.

1. Bob gave $\frac{3}{4}$ of his arrowhead collection to Tom. Tom gave $\frac{1}{2}$ of his share to his brother Bill. What part of Bob's original collection does Bill have?

2. Paul could throw a stone $\frac{1}{3}$ of the way across the river. Peter could throw a stone only $\frac{3}{4}$ as far as Paul. What part of the way across the river could Pete throw the stone?

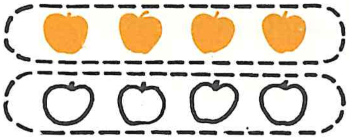
3. A recipe calls for $\frac{3}{4}$ of a cup of sugar. Mary wants to make $\frac{1}{3}$ of the recipe. How much sugar should she use?

4. John lives $\frac{5}{8}$ of a mile from school. His dog followed him $\frac{1}{2}$ of the way to school before John sent him home. What part of a mile did his dog follow him?

5. Mother made 5 dozen cookies and told Jane that she could take $\frac{3}{5}$ of them to school. How many cookies could Jane take to school?

6. Alfred must practice the trombone $2\frac{1}{2}$ hours per week. On Monday he did $\frac{1}{2}$ of that week's practicing. How many hours did he practice on Monday?

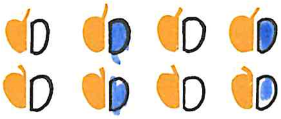
Mark and Jim disagreed about the way to find one-half of eight apples. Mark's way was to make two equivalent subsets and take one of them.



$\frac{1}{2}$ of 8 is ? .

$\frac{1}{2} \times 8 =$?

Jim argued that one-half of each apple should be taken.



8 halves is ? .

C

$8 \times \frac{1}{2} =$ ~~3~~ ? 4

8

$\underbrace{\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}}+ \frac{1}{2} =$ 4 ?

Write an equation and solve it to answer each question.

1. What is $\frac{1}{2}$ of 8?
$\frac{1}{2}$? × 8 ? = 4 ?

2. 8 halves is what?
$\frac{1}{2}$? × $\frac{3}{4}$? = [illegible] ?

3. $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$ is what?
? × ? = ?

4. What is $\frac{1}{3}$ of 12?

5. 12 fourths is what?

6. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ is what?

7. What is $\frac{1}{4}$ of 14?

8. 7 thirds is what?

9. $\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}$ is what?

0. What is $\frac{1}{3}$ of 10?

11. 6 sixths is what?

12. $\frac{3}{4}+\frac{3}{4}+\frac{3}{4}+\frac{3}{4}$ is what?

3. What is $\frac{1}{5}$ of 5?

14. Zero thirds is what?

15. $\frac{3}{2}+\frac{3}{2}+\frac{3}{2}$ is what?

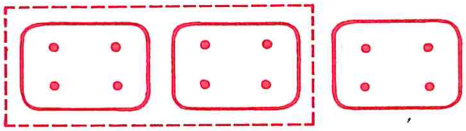
Mark asked, "What is $\frac{2}{3}$ of 12?"

Jim answered, "It is 8."

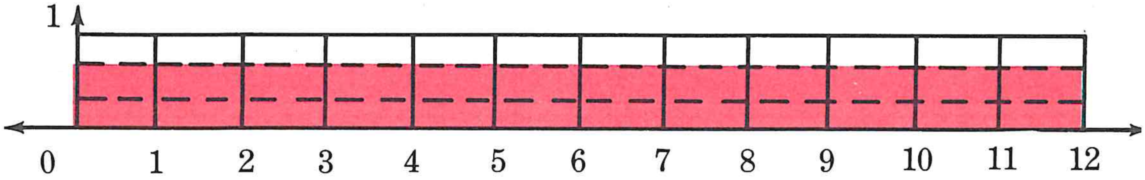
"Why?" asked Mark.

"If a set of 12 is split into 3 equivalent subsets, each subset will have 4 elements. Then take 2 of them," Jim replied.

Jim drew a picture to show what he meant.



Mark said, "We should also be able to show this with regions."



$$\frac{2}{3} \times 12 = \underline{\ ?\ }$$

Copy and complete each equation.

	A	**B**	**C**	**D**
1.	$\frac{2}{5} \times 10 = \underline{\ ?\ }$	$\frac{3}{4} \times 8 = \underline{\ ?\ }$	$\frac{5}{6} \times 12 = \underline{\ ?\ }$	$\frac{7}{9} \times 18 = \underline{\ ?\ }$
2.	$\frac{2}{3} \times 6 = \underline{\ ?\ }$	$\frac{2}{3} \times 9 = \underline{\ ?\ }$	$\frac{2}{3} \times 18 = \underline{\ ?\ }$	$\frac{6}{7} \times 14 = \underline{\ ?\ }$
3.	$\frac{4}{5} \times 5 = \underline{\ ?\ }$	$\frac{2}{2} \times 8 = \underline{\ ?\ }$	$\frac{4}{9} \times 9 = \underline{\ ?\ }$	$\frac{2}{3} \times 24 = \underline{\ ?\ }$
4.	$\frac{2}{3} \times 15 = \underline{\ ?\ }$	$\frac{2}{3} \times 3 = \underline{\ ?\ }$	$\frac{3}{5} \times 20 = \underline{\ ?\ }$	$\frac{3}{4} \times 36 = \underline{\ ?\ }$
5.	$\frac{3}{4} \times 4 = \underline{\ ?\ }$	$\frac{5}{6} \times 6 = \underline{\ ?\ }$	$\frac{4}{5} \times 20 = \underline{\ ?\ }$	$\frac{2}{3} \times 48 = \underline{\ ?\ }$
6.	$\frac{3}{5} \times 15 = \underline{\ ?\ }$	$\frac{3}{7} \times 14 = \underline{\ ?\ }$	$\frac{3}{7} \times 21 = \underline{\ ?\ }$	$\frac{0}{6} \times 12 = \underline{\ ?\ }$

Copy and complete each sentence, writing >, <, or = in place of the ○.

1. $\frac{2}{2}$ ○ $\frac{1}{2}$

2. $\frac{2}{4}$ ○ $\frac{3}{4}$

3. $\frac{7}{9}$ ○ $\frac{6}{9}$

4. $\frac{2}{3}$ ○ $\frac{4}{6}$

5. $\frac{8}{5}$ ○ $\frac{5}{8}$

6. $3\frac{1}{3}$ ○ $\frac{7}{2}$

7. $\frac{3}{2}$ ○ $\frac{5}{4}$

8. $\frac{11}{10}$ ○ $\frac{10}{10}$

9. $\frac{11}{9}$ ○ $\frac{10}{9}$

10. $\frac{13}{7}$ ○ $\frac{12}{7}$

11. $\frac{6}{2}$ ○ 3

12. $\frac{7}{3}$ ○ $2\frac{1}{3}$

Copy and complete each equation.

3. $\frac{1}{2} = \frac{?}{4}$

4. $\frac{2}{3} = \frac{?}{6}$

5. $\frac{1}{2} = \frac{?}{8}$

6. $\frac{4}{3} = \frac{?}{6}$

7. $\frac{6}{5} = \frac{?}{10}$

18. $\frac{1}{3} = \frac{?}{6}$

19. $\frac{3}{4} = \frac{?}{8}$

20. $\frac{2}{4} = \frac{?}{8}$

21. $\frac{4}{5} = \frac{?}{10}$

22. $\frac{5}{3} = \frac{?}{6}$

23. $\frac{1}{4} = \frac{?}{8}$

24. $\frac{1}{2} = \frac{?}{6}$

25. $\frac{1}{2} = \frac{?}{10}$

26. $\frac{6}{3} = \frac{?}{1}$

27. $\frac{12}{10} = \frac{?}{5}$

28. $\frac{1}{5} = \frac{?}{10}$

29. $\frac{2}{5} = \frac{?}{10}$

30. $\frac{3}{2} = \frac{?}{4}$

31. $\frac{7}{3} = \frac{?}{6}$

32. $\frac{15}{10} = \frac{?}{2}$

3. Rewrite the following fractions to show the order of the numbers from least to greatest. If you need to, use the number line on page 225.

$$\frac{3}{2} \qquad \frac{1}{4} \qquad \frac{0}{8} \qquad \frac{3}{8} \qquad \frac{8}{8} \qquad \frac{10}{8}$$

Solve each story problem.

1. Jean ate one-half of a candy apple. Betty ate six-twelfths of the candy apple. Show that both girls ate the same amount of the candy apple.
2. Bill spent five-sixths of an hour playing ball. Ken spent ten-twelfths of an hour playing ball. Show that both boys spent the same amount of time playing ball.
3. Karen's mother bought two-thirds of a dozen rolls. Karen ate one-half of these rolls. How many rolls did Karen eat?
4. Caroline's mother used $\frac{7}{8}$ of a yard of material to make herself an apron. She made one for Caroline that used only $\frac{1}{2}$ as much material. What part of a yard of material was in Caroline's apron?
5. Todd had \$2.50. He spent one-half of it. How much did he spend?
6. There are 28 pupils in Mrs. Henry's class. One day one-fourth of the pupils were absent. How many pupils were absent?
7. Mrs. Fain's class needs three-fourths of a yard of ribbon for each of 6 costumes. How many yards of ribbon do they need?
8. Two-thirds of the guided missiles that were fired hit the target. Thirty-six missiles were fired. How many targets were hit?
9. Mr. Kelly has a field that is three-fourths of a square mile in size. If he plows three-eighths of it, what part of a square mile will be plowed?
10. Mary had $\frac{2}{3}$ of a cake. She served $\frac{1}{2}$ of it for lunch. She, Susan, and Nancy each ate $\frac{1}{3}$ of the part served for lunch. What part of the whole cake did each girl eat?

MONEY

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

. Last Sunday the Carson family went to a baseball game. Mr. and Mrs. Carson's tickets together cost \$5.70. Marla and Jeff's tickets together cost \$3.40. How much did all of the tickets cost?

$$570 + 340 = t$$

$$\underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$$

. During the game, Mr. Carson bought six hot dogs for a total of \$2.10, five cups of soda-pop for a total of \$.55, three ice cream bars for a total of \$.30, and one 15¢ bag of popcorn. How much did Mr. Carson spend for refreshments?

. If Mr. Carson paid for the refreshments with a ten-dollar bill, how much change did he get?

. Jeff bought a souvenir baseball for \$2.35. How much change did he get from three one-dollar bills?

Marla bought a baseball pennant for 39¢, a wind-up dog for 78¢, and a baseball beanie for \$1.65. How much change did Marla get from a five-dollar bill?

Mrs. Jones went to a department store. She bought something at sixteen different counters. How much change did she receive each time?

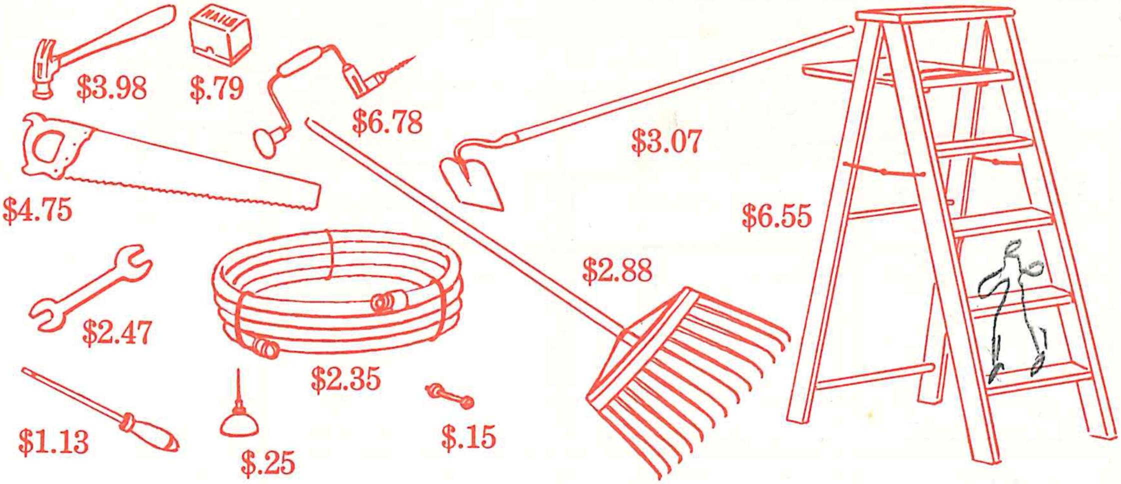
	Cost	Amount Given
1.	$.12	$.25
2.	$.37	$.60
3.	$.46	$.50
4.	$.23	$1.00
5.	$.55	$1.00
6.	$1.98	$5.00
7.	$3.69	$5.00
8.	$6.04	$10.00

	Amount Given	Cost
9.	$.50	$.38
10.	$1.00	$.64
11.	$2.00	$1.23
12.	$4.00	$3.07
13.	$5.00	$2.55
14.	$10.00	$6.12
15.	$10.00	$8.49
16.	$20.00	$13.98

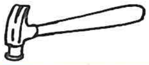
Find the amounts.

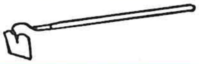
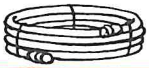
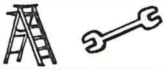
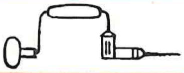
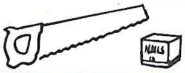
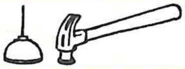
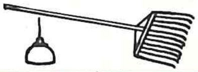
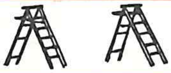
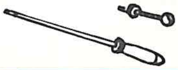
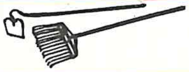
	A	**B**	**C**	**D**	**E**
17.	$ .68 + .25	$ .47 + .89	$1.09 + .45	$4.35 +1.66	$8.14 +6.98
18.	$ .43 − .27	$1.05 − .68	$1.29 − .84	$7.15 −2.47	$12.48 − 9.53
19.	$15.75 + 4.95	$20.00 − 4.17	$15.05 − 4.99	$ 3.75 +14.88	$10.00 − 9.33

THE HARDWARE STORE



On Thursday morning, Mr. Wilson had eleven customers at his hardware store. The things they bought and the amounts they gave Mr. Wilson are shown below. Describe the change Mr. Wilson gave to each customer.

Item	Amount Given	Change
	$5.00	2 pennies, 1 dollar

	Item	Amount Given		Item	Amount Given
1.		$10.00	**6.**		$10.00
2.		$10.00	**7.**		$10.00
3.		$10.00	**8.**		$5.00
4.		$5.00	**9.**		$20.00
5.		$5.00	**10.**		$10.00

Complete this newspaper advertisement.

CLEARANCE SALE

	Girls' Dresses	Boys' Slacks	Girls' Shoes	Boys' Shirts
Were	$7.98	$4.75	$3.85	6.
Now	$6.99	$3.98	5.	$2.47
Save	1. 97	2. 77	$.27	$.38

CLEARANCE SALE

	Model Airplanes	Cameras	Dolls	Swing Sets
Were	$2.98	$13.65	$6.50	8.
Now	$1.79	4. 1'88	$5.99	$19.98
Save	3. 1.19	$2.77	7.	$1.52

Find the amounts.

	A	B	C	D	E
9.	$5.38 +6.54 1292	$7.24 +2.89 11.13	$5.00 −2.89 2.17	$10.00 − 5.66 4.34	$1.69 +4.75 6.4)
10.	$2.01 + 99 3.00	$7.08 −4.34 2.74	$17.87 + 3,46 2133	$9.05 − .06	$10.35 + .77
11.	$14.00 − 2.08	$18.00 − .01	$97.60 + 8.38	$27.00 −26.95	$30.40 − .41

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Mrs. Groff planned a party for her class. She bought three paper tablecloths for $.79 each. How much did she spend for the tablecloths?

2. She bought 20 ice cream cups for $.05 each. How much did the ice cream cups cost?

3. Mrs. Groff spent $1.68 for two dozen cupcakes. How much did each cupcake cost?

Find the amounts.

A	B	C	D	E
$4.15 × 5 2075	$2.09 × 7 14.63	5 2 $8.24 × 6 5244	3 $3.40 × 9 3060	2 4 $7.25 × 8 58.00
$ .59 × 10 5.90	$1.43 × 20 20.60	$2.56 × 70	$4.09 × 90	$10.03 × 80
$ .06 × 34	$1.32 × 47	$9.04 × 65	$12.51 × 82	$16.98 × 73

Find the amounts.

1. 5 ⟌ $7.65

2. 6 ⟌ $9.06

3. 30 ⟌ $45.60

4. 2 ⟌ $8.78

5. 58 ⟌ $31.32

6. 60 ⟌ $67.80

7. 7 ⟌ $6.51

8. 27 ⟌ $22.41

9. 43 ⟌ $40.85

Complete each chart.

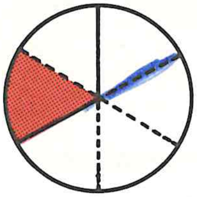
10.

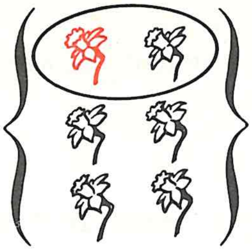
×	2	3	4
$.39	78	107	146
$.79	158	137	216
$1.45	2.90	435	580
$3.98	796	?	$592
4.50	$9.00	?	?
$10.00	$20.00	30.00	40.00
15.50	?	?	$62.00
$9.60	?	?	?

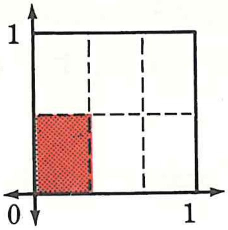
11.

×	10	20	30
$.65	?	?	?
$.89	?	?	?
?	?	$33.20	?
$3.04	?	?	?
?	?	?	$137.10
$5.50	?	?	?
$10.00	?	?	?
$20.00	?	?	?

FRACTIONAL NUMBERS: MIXED FRACTIONS







$\frac{1}{2} \times \frac{1}{3} =$?

---

opy and complete each equation.

1. $\frac{1}{7} \times \frac{1}{2} = \frac{1}{14}$?

2. $\frac{2}{7} \times \frac{1}{2} = \frac{2}{14}$?

3. $\frac{3}{4} \times \frac{4}{3} = \frac{12}{12}$?

4. $\frac{9}{3} \times \frac{5}{1} =$?

5. $\frac{25}{5} \times \frac{40}{8} =$?

6. $\frac{72}{9} \times \frac{56}{7} =$?

7. $\frac{1}{3} \times 6 =$?

8. $\frac{2}{5} \times 15 =$?

9. $12 \times \frac{1}{4} =$?

10. $\frac{1}{4} \times \frac{6}{3} =$?

11. $\frac{8}{3} \times \frac{1}{3} =$?

12. $\frac{6}{5} \times \frac{2}{3} =$?

13. $\frac{4}{3} \times \frac{5}{2} =$?

14. $\frac{7}{8} \times \frac{3}{2} =$?

15. $\frac{3}{2} \times 12 =$?

16. $\frac{1}{3} \times \frac{4}{2} =$?

17. $\frac{5}{3} \times \frac{7}{2} =$?

18. $14 \times \frac{3}{7} =$?

---

opy and complete each multiplication table.

19.

$\frac{4}{2}$	$\frac{9}{3}$	?
$\frac{12}{3}$	$\frac{20}{4}$	?
?	?	?

20.

$\frac{1}{3}$	$\frac{6}{1}$	?
$\frac{8}{1}$	$\frac{2}{5}$	?
?	?	?

21.

$\frac{5}{4}$	$\frac{3}{2}$	?
$\frac{1}{3}$	$\frac{7}{6}$	?
?	?	?

Write an equation or inequality for each problem. Answer the question.

1. Pam had $\frac{3}{4}$ of a candy bar and Judy had $\frac{5}{6}$ of the same kind of candy bar. Which girl had more candy?

2. Tony had 16 rabbits. He sold $\frac{5}{8}$ of them. How many rabbits did he have left?

3. Martin put 3 pieces of wood end to end. Each was $\frac{5}{8}$ of a yard long. Together, how much did they measure?

4. Julie needed $\frac{3}{8}$ of a yard of cloth to make a doll's dress. She wanted to make 3 dresses. How much cloth did she need?

Copy and complete each sentence, writing $>$, $<$, or $=$ in place of the $\bigcirc$.

5. $\frac{7}{4} \textcircled{$<$} \frac{7}{6}$

6. $\frac{3}{2} \bigcirc \frac{5}{2}$

7. $\frac{7}{4} \bigcirc \frac{5}{3}$

8. $\frac{2}{8} \bigcirc \frac{0}{6}$

9. $\frac{21}{5} \bigcirc \frac{16}{4}$

10. $\frac{11}{4} \bigcirc \frac{16}{6}$

11. $\frac{14}{14} \bigcirc \frac{23}{23}$

12. $\frac{8}{2} \bigcirc \frac{12}{3}$

13. $\frac{3}{7} \times \frac{2}{5} \bigcirc \frac{3}{7} \times \frac{2}{5}$

14. $\frac{2}{2} \times \frac{6}{8} \bigcirc \frac{3}{4} \times \frac{4}{4}$

15. $\frac{0}{6} \times \frac{1}{2} \textcircled{$<$} \frac{1}{3} \times \frac{0}{8}$

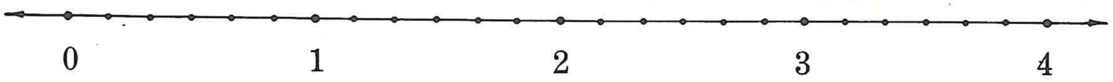
16. $\frac{1}{4} \times 7 \bigcirc \frac{1}{3} \times 8$

17. $8 \times \frac{2}{1} \bigcirc \frac{1}{2} \times 8$

18. $\frac{5}{4} \times \frac{15}{15} \bigcirc \frac{2}{2} \times \frac{4}{5}$

19. $\frac{5}{4} \times \frac{4}{5} \bigcirc \frac{4}{4} \times \frac{8}{8}$

Copy and solve each equation. Looking at the number lines may help you.



1. $\frac{5}{6} + \frac{2}{6} = \underline{\ ?\ }$

2. $\frac{2}{6} + \frac{5}{6} = \underline{\ ?\ }$

3. $\frac{9}{6} + \frac{3}{6} = \underline{\ ?\ }$

4. $\frac{3}{3} + \frac{6}{3} = \underline{\ ?\ }$

5. $\frac{8}{3} + \frac{4}{3} = \underline{\ ?\ }$

6. $\frac{5}{2} + \frac{3}{2} = \underline{\ ?\ }$

7. $\frac{2}{2} + \frac{5}{2} = \underline{\ ?\ }$

8. $\frac{12}{6} + \frac{?}{6} = \frac{12}{6}$

9. $\frac{15}{6} - \frac{5}{6} = \underline{\ ?\ }$

10. $\frac{?}{3} + \frac{1}{3} = \frac{8}{3}$

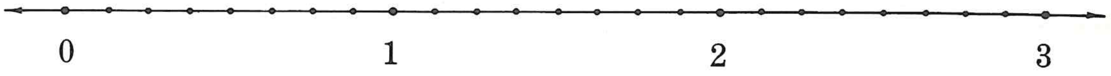
11. $\frac{9}{3} - \frac{2}{3} = \underline{\ ?\ }$

12. $\frac{6}{2} - \frac{?}{2} = \frac{3}{2}$

13. $\frac{?}{2} + \frac{0}{2} = \frac{0}{2}$

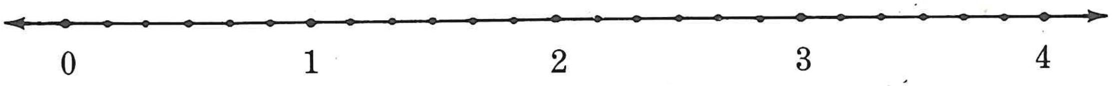
14. $\frac{8}{2} - \frac{3}{2} = \underline{\ ?\ }$

15. $\frac{?}{6} + \frac{0}{6} = \frac{1}{6}$



	A	**B**	**C**
16.	$\frac{1}{4} + \frac{2}{4} + \frac{2}{4} = \underline{\ ?\ }$	$\frac{?}{4} + \frac{0}{4} + \frac{6}{4} = \frac{9}{4}$	$\frac{9}{8} + \frac{9}{8} + \frac{2}{8} = \underline{\ ?\ }$
17.	$\frac{4}{4} + \frac{5}{4} + \frac{2}{4} = \underline{\ ?\ }$	$\frac{10}{4} - \frac{3}{4} = \underline{\ ?\ }$	$\frac{6}{8} + \frac{1}{8} + \frac{?}{8} = \frac{24}{8}$
18.	$\frac{2}{4} + \frac{3}{4} + \frac{1}{4} = \underline{\ ?\ }$	$\frac{8}{4} - \frac{3}{4} = \underline{\ ?\ }$	$\frac{10}{8} + \frac{?}{8} + \frac{5}{8} = \frac{19}{8}$
9.	$\frac{7}{4} + \frac{?}{4} + \frac{2}{4} = \frac{10}{4}$	$\frac{3}{8} + \frac{1}{8} + \frac{5}{8} = \underline{\ ?\ }$	$\frac{?}{8} + \frac{6}{8} + \frac{9}{8} = \frac{16}{8}$
20.	$\frac{3}{4} + \frac{2}{4} + \frac{?}{4} = \frac{11}{4}$	$\frac{1}{8} + \frac{0}{8} + \frac{3}{8} = \underline{\ ?\ }$	$\frac{23}{8} - \frac{5}{8} = \underline{\ ?\ }$

Rename or use the number line. Copy and complete each equation.



1. $\frac{1}{2} + \frac{1}{3} = \frac{?}{6} + \frac{?}{6} = \underline{\ ?\ }$

2. $\frac{2}{2} + \frac{3}{3} = \underline{\ ?\ }$

3. $\frac{3}{2} + \frac{5}{3} = \underline{\ ?\ }$

4. $\frac{2}{2} + \frac{1}{3} = \underline{\ ?\ }$

5. $\frac{3}{2} + \frac{3}{3} = \underline{\ ?\ }$

6. $\frac{3}{2} + \frac{6}{3} = \underline{\ ?\ }$

7. $\frac{2}{2} + \frac{2}{3} = \underline{\ ?\ }$

8. $\frac{3}{2} + \frac{4}{3} = \underline{\ ?\ }$

9. $\frac{4}{2} + \frac{6}{3} = \underline{\ ?\ }$

10. $\frac{?}{3} + \frac{1}{2} = \underline{\ ?\ } + \underline{\ ?\ } = \frac{7}{6}$

11. $\frac{5}{2} + \frac{?}{6} = \underline{\ ?\ } + \underline{\ ?\ } = \frac{24}{6}$

12. $\frac{10}{3} - \frac{0}{6} = \underline{\ ?\ } - \underline{\ ?\ } = \underline{\ ?\ }$

13. $\frac{7}{3} + \frac{?}{2} = \underline{\ ?\ } + \underline{\ ?\ } = \frac{20}{6}$

14. $\frac{4}{2} - \frac{3}{3} = \underline{\ ?\ } - \underline{\ ?\ } = \underline{\ ?\ }$

15. $\frac{1}{3} + \frac{1}{6} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

16. $\frac{1}{3} + \frac{5}{6} = \underline{\ ?\ }$

17. $\frac{4}{3} + \frac{5}{6} = \underline{\ ?\ }$

18. $\frac{7}{6} + \frac{1}{2} = \underline{\ ?\ }$

19. $\frac{2}{3} + \frac{1}{6} = \underline{\ ?\ }$

20. $\frac{5}{6} + \frac{4}{3} = \underline{\ ?\ }$

21. $\frac{10}{6} + \frac{3}{2} = \underline{\ ?\ }$

22. $\frac{3}{3} + \frac{1}{6} = \underline{\ ?\ }$

23. $\frac{3}{2} + \frac{1}{6} = \underline{\ ?\ }$

24. $\frac{5}{2} + \frac{3}{6} = \underline{\ ?\ }$

25. $\frac{9}{6} + \frac{?}{2} = \underline{\ ?\ } + \underline{\ ?\ } = \frac{21}{6}$

26. $\frac{5}{2} + \frac{?}{6} = \underline{\ ?\ } + \underline{\ ?\ } = \frac{15}{6}$

27. $\frac{6}{2} - \frac{6}{3} = \underline{\ ?\ } - \underline{\ ?\ } = \underline{\ ?\ }$

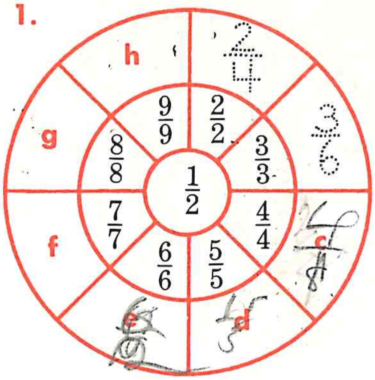
28. $\frac{?}{3} + \frac{11}{6} = \underline{\ ?\ } + \underline{\ ?\ } = \frac{19}{6}$

29. $\frac{10}{3} - \frac{2}{6} = \underline{\ ?\ } - \underline{\ ?\ } = \underline{\ ?\ }$

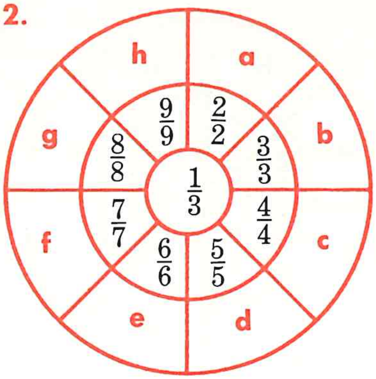
30. $\frac{5}{6} - \frac{2}{3} = \underline{\ ?\ } - \underline{\ ?\ } = \underline{\ ?\ }$

Copy and complete each multiplication wheel.

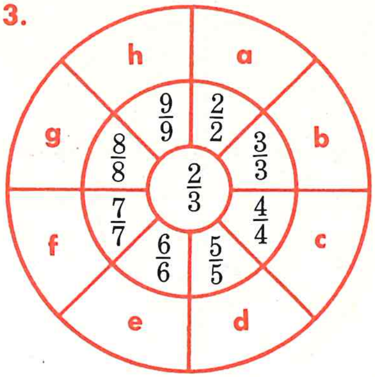
1.



2.



3.



4. Do all the fractions you wrote in the first wheel name the same fractional number? In the second wheel? In the third wheel?

Use the multiplication wheels to complete each row of fractions.

5. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{?} = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

6. $\frac{1}{3} = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

7. $\frac{2}{3} = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ } = \underline{\ ?\ }$

Copy and solve each equation. Looking at your rows of fractions in 5, 6, and 7 may help you rename the fractional numbers.

8. $\frac{1}{4} + \frac{1}{2} = a$

9. $\frac{2}{3} + \frac{5}{12} = d$

10. $\frac{5}{6} + \frac{2}{3} = b$

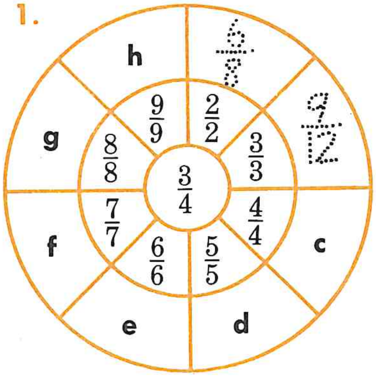
11. $\frac{5}{8} + \frac{1}{2} = e$

12. $\frac{4}{9} + \frac{1}{3} = c$

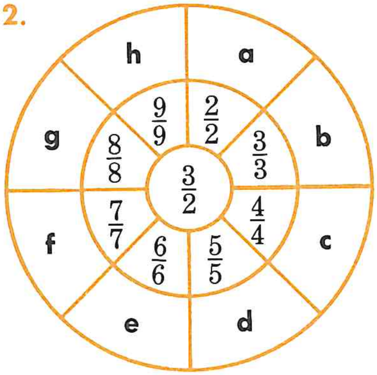
13. $\frac{1}{2} + \frac{2}{3} = f$

Complete each multiplication wheel. A

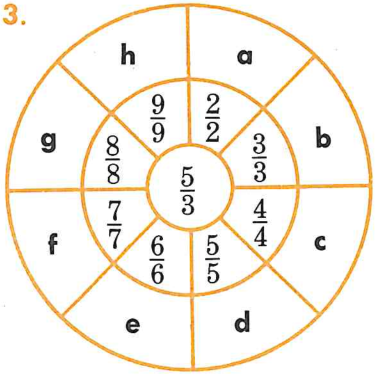
1.



2.



3.



4. Do all the fractions you wrote in the first wheel name the same fractional number? In the second wheel? In the third wheel?

Use the multiplication wheels to complete each row of fractions.

5. $\frac{3}{4} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{}$

4 8 7 6 9 9 10 11

6. $\frac{3}{2} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{}$

31 1005 69 89 33 57 [illegible] [illegible]

7. $\frac{5}{3} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{} = \frac{?}{}$

96 71 10 98 91 35 38 9

Copy and solve each equation. Looking at your rows of fractions in 5, 6, and 7 may help you rename the fractional numbers.

8. $\frac{3}{2} + \frac{3}{4} = g$

9. $\frac{7}{6} + \frac{5}{3} = h$

10. $\frac{11}{8} + \frac{3}{2} = j$

11. $\frac{4}{9} + \frac{5}{3} = k$

12. $\frac{3}{4} + \frac{5}{3} = m$

13. $\frac{3}{2} + \frac{5}{3} = n$

Copy and solve each equation.

1. $\frac{1}{6} + \frac{5}{3} = a$

2. $\frac{5}{3} + \frac{1}{2} = d$

3. $\frac{3}{4} + \frac{5}{3} = g$

4. $\frac{6}{3} + \frac{20}{5} = m$

5. $\frac{7}{4} + \frac{3}{2} = b$

6. $\frac{5}{8} + \frac{3}{4} = e$

7. $\frac{3}{3} + \frac{10}{5} = h$

8. $\frac{1}{16} + \frac{1}{2} = n$

9. $\frac{5}{3} + c = \frac{20}{9}$

10. $\frac{1}{3} + \frac{2}{15} = f$

11. $\frac{1}{3} + \frac{4}{9} = i$

12. $\frac{10}{5} + \frac{1}{6} = p$

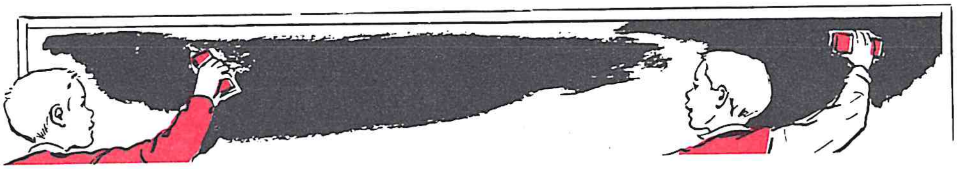
Copy and complete each addition table.

13.

+	$\frac{0}{2}$	$\frac{1}{2}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{4}{4}$
$\frac{1}{2}$	?	?	?	?	?
$\frac{3}{2}$	?	?	?	?	?
$\frac{5}{3}$	?	?	?	?	?
$\frac{3}{4}$	?	?	?	?	?

14.

+	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{0}{8}$	$\frac{7}{3}$	$\frac{4}{5}$
$\frac{0}{5}$	?	?	?	?	?
$\frac{1}{3}$	?	?	?	?	?
$\frac{5}{3}$	?	?	?	?	?
$\frac{3}{5}$	?	?	?	?	?



For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Robin washed $\frac{1}{3}$ of the chalkboard. Jim washed $\frac{4}{9}$ of it. What part of the whole chalkboard did the two boys wash?

2. Rita needed $\frac{4}{3}$ yard of cloth for potholders. Diane needed $\frac{3}{4}$ of a yard of the same cloth for doll dresses. How many yards of cloth did they need?

3. In a relay race, John ran $\frac{3}{8}$ of the way, Mark ran $\frac{5}{16}$ of the way, and Ricky ran the rest of the way. What part of the way did Ricky run?

4. Jim used $\frac{5}{8}$ of a pint of white paint. John used $\frac{3}{4}$ of a pint. Jack used $\frac{7}{4}$ of a pint. How many pints of white paint did the three boys use?

---

5. Decode the message.

A	E	I	O	U	H	S	T	P	L	F
$\frac{6}{13}$	$\frac{13}{8}$	$\frac{7}{6}$	$\frac{6}{15}$	$\frac{41}{18}$	$\frac{5}{6}$	$\frac{12}{8}$	$\frac{18}{15}$	$\frac{19}{15}$	$\frac{13}{6}$	$\frac{39}{18}$

$\frac{1}{2}+\frac{1}{3}$	$\frac{7}{8}+\frac{3}{4}$	$\frac{1}{3}+\frac{1}{2}+\frac{8}{6}$	$\frac{6}{9}+\frac{3}{5}$

$\frac{2}{3}+\frac{1}{6}$	$\frac{3}{4}+\frac{1}{2}+\frac{3}{8}$	$\frac{2}{3}+\frac{9}{6}$	$\frac{1}{3}+\frac{8}{15}+\frac{2}{5}$

1. Copy and complete the table.

Addends	Sum	Equations		n
$\frac{11}{12}$, n	$\frac{16}{12}$	$\frac{11}{12} + n = \frac{16}{12}$	$\frac{16}{12} - \frac{11}{12} = n$	$\frac{5}{12}$
n, $\frac{7}{8}$	$\frac{9}{8}$	+	−	
n, $\frac{11}{10}$	$\frac{12}{5}$	+	−	
$\frac{5}{6}$, n	$\frac{17}{12}$	+	−	
n, $\frac{7}{4}$	$\frac{19}{8}$	+	−	

Copy and solve each equation.

. $\frac{1}{2} - \frac{1}{3} = c$

. $\frac{5}{2} - \frac{1}{3} = p$

$\frac{16}{4} - \frac{6}{3} = m$

5. $\frac{7}{8} - \frac{1}{4} = a$

6. $\frac{10}{9} - \frac{1}{3} = r$

7. $\frac{8}{5} - \frac{11}{10} = h$

8. $\frac{9}{7} - \frac{2}{7} = d$

9. $\frac{5}{3} - \frac{5}{6} = t$

10. $\frac{7}{3} - \frac{21}{9} = y$

11. $\frac{14}{10} - \frac{3}{5} = f$

12. $\frac{1}{3} - \frac{1}{4} = s$

13. $\frac{8}{2} - \frac{9}{8} = z$

$\frac{1}{2} + \frac{1}{3} = n$

$\underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

$$\begin{array}{r} \frac{1}{2} \\ + \ \frac{1}{3} \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} \frac{?}{6} \\ + \ \frac{?}{6} \\ \hline \end{array}$$

$\frac{1}{2} - \frac{1}{6} = n$

$\underline{\ ?\ } - \underline{\ ?\ } = \underline{\ ?\ }$

$$\begin{array}{r} \frac{1}{2} \\ - \ \frac{1}{6} \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} \frac{?}{6} \\ - \ \frac{?}{6} \\ \hline \end{array}$$

Find the sums and differences.

1. $\begin{array}{r} \frac{3}{4} \\ + \ \frac{7}{8} \\ \hline \end{array}$

2. $\begin{array}{r} \frac{5}{3} \\ + \ \frac{5}{6} \\ \hline \end{array}$

3. $\begin{array}{r} \frac{5}{3} \\ - \ \frac{5}{6} \\ \hline \end{array}$

4. $\begin{array}{r} \frac{3}{2} \\ - \ \frac{3}{4} \\ \hline \end{array}$

5. $\begin{array}{r} \frac{7}{8} \\ - \ \frac{2}{4} \\ \hline \end{array}$

6. $\begin{array}{r} \frac{7}{2} \\ + \ \frac{8}{3} \\ \hline \end{array}$

7. $\begin{array}{r} \frac{14}{12} \\ - \ \frac{3}{4} \\ \hline \end{array}$

8. $\begin{array}{r} \frac{16}{8} \\ + \ \frac{7}{2} \\ \hline \end{array}$

9. $\begin{array}{r} \frac{0}{8} \\ + \ \frac{4}{16} \\ \hline \end{array}$

10. $\begin{array}{r} \frac{4}{3} \\ - \ \frac{7}{9} \\ \hline \end{array}$

11. $\begin{array}{r} \frac{4}{3} \\ + \ \frac{7}{9} \\ \hline \end{array}$

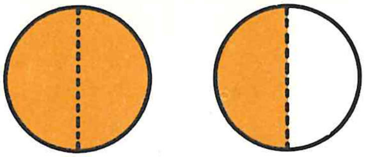
12. $\begin{array}{r} \frac{14}{6} \\ + \ \frac{3}{2} \\ \hline \end{array}$

13. $\begin{array}{r} \frac{1}{2} \\ \frac{2}{3} \\ + \ \frac{1}{4} \\ \hline \end{array}$

14. $\begin{array}{r} \frac{2}{5} \\ \frac{3}{4} \\ + \ \frac{1}{2} \\ \hline \end{array}$

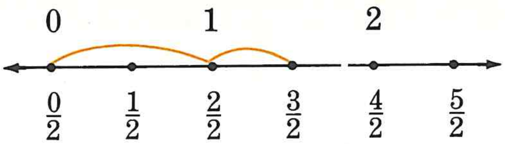
15. $\begin{array}{r} \frac{7}{10} \\ \frac{2}{5} \\ + \ \frac{3}{3} \\ \hline \end{array}$

16. $\begin{array}{r} \frac{3}{2} \\ \frac{5}{8} \\ + \ \frac{7}{4} \\ \hline \end{array}$



$$\overset{1}{\frac{2}{2}} + \frac{1}{2} = \frac{3}{2}$$

$$1\frac{1}{2} = \frac{3}{2}$$



$$\overset{1}{\frac{2}{2}} + \frac{1}{2} = \overset{1}{\frac{3}{2}}$$

$$1\frac{1}{2} = \frac{3}{2}$$

Rename each fractional number with a mixed fraction.

$$\frac{7}{4} = \overset{1}{\frac{4}{4}} + \frac{3}{4} = 1\frac{3}{4}$$

1. $\frac{5}{3} = \frac{3}{3} + \frac{?}{3} = \underline{\ ?\ }$

2. $\frac{8}{5} = \frac{?}{5} + \frac{?}{5} = \underline{\ ?\ }$

3. $\frac{4}{3} = \underline{\ ?\ }$

4. $\frac{14}{10} = \underline{\ ?\ }$

5. $\frac{8}{3} = \overset{1}{\frac{3}{3}} + \overset{1}{\frac{3}{3}} + \frac{2}{3} = \underline{\ ?\ }$

6. $\frac{8}{3} = \overset{2}{\frac{6}{3}} + \frac{2}{3} = \underline{\ ?\ }$

7. $\frac{9}{4} = \frac{8}{4} + \frac{?}{4} = \underline{\ ?\ }$

8. $\frac{13}{5} = \frac{?}{5} + \frac{3}{5} = \underline{\ ?\ }$

9. $\frac{18}{7} = \frac{?}{7} + \frac{?}{7} = \underline{\ ?\ }$

10. $\frac{10}{3} = \frac{9}{3} + \frac{?}{3} = \underline{\ ?\ }$

11. $\frac{9}{2} = \frac{8}{2} + \frac{?}{2} = \underline{\ ?\ }$

12. $\frac{15}{6} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

13. $\frac{31}{8} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

14. $\frac{25}{9} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

15. $\frac{22}{10} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

16. $\frac{29}{12} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

Copy and rename each fractional number.

$$1\frac{2}{3} = 1 + \frac{2}{3} = \overset{1}{\frac{3}{3}} + \frac{2}{3} = \frac{5}{3}$$

---

1. $1\frac{3}{4} = \frac{4}{4} + \frac{3}{4} = \frac{?}{4}$

2. $1\frac{5}{6} = \frac{?}{6} + \frac{?}{6} = \frac{?}{6}$

3 $1\frac{3}{8} = \frac{?}{8} + \frac{?}{8} = \frac{?}{8}$

4. $1\frac{4}{9} + \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

5. $1\frac{7}{10} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

6. $1\frac{5}{12} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

$$2\frac{3}{4} = 2 + \frac{3}{4} = \overset{1}{\frac{4}{4}} + \overset{1}{\frac{4}{4}} + \frac{3}{4} = \frac{11}{4}$$

$$2\frac{3}{4} = 2 + \frac{3}{4} = \overset{2}{\frac{8}{4}} + \frac{3}{4} = \frac{11}{4}$$

---

7. $2\frac{1}{2} = 2 + \frac{1}{2} = \frac{?}{2} + \frac{1}{2} = \frac{?}{2}$

8. $2\frac{2}{3} = 2 + \frac{2}{3} = \frac{?}{3} + \frac{2}{3} = \frac{?}{3}$

9. $3\frac{1}{4} = 3 + \frac{1}{4} = \frac{?}{4} + \frac{1}{4} = \frac{?}{4}$

10. $3\frac{1}{3} = 3 + \frac{1}{3} = \frac{?}{3} + \frac{1}{3} = \frac{?}{3}$

11. $3\frac{3}{4} = 3 + \frac{3}{4} = \frac{?}{4} + \frac{3}{4} = \frac{?}{4}$

12. $3\frac{4}{5} = 3 + \frac{4}{5} = \underline{\ ?\ } + \frac{4}{5} = \frac{?}{5}$

13. $3\frac{3}{10} = 3 + \frac{3}{10} = \underline{\ ?\ } + \frac{3}{?} = \frac{?}{10}$

14. $4\frac{2}{5} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

15. $4\frac{3}{5} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

16. $6\frac{1}{5} = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ }$

---

17. $6\frac{2}{3} = \underline{\ ?\ }$

18. $6\frac{7}{10} = \underline{\ ?\ }$

19. $3\frac{5}{12} = \underline{\ ?\ }$

20. $7\frac{3}{8} = \underline{\ ?\ }$

21. $7\frac{5}{6} = \underline{\ ?\ }$

22. $9\frac{3}{5} = \underline{\ ?\ }$

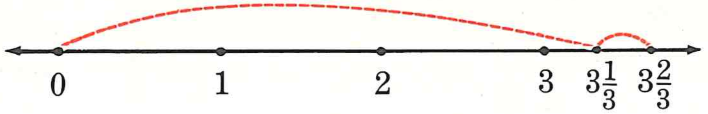
23. $10\frac{1}{2} = \underline{\ ?\ }$

24. $11\frac{1}{3} = \underline{\ ?\ }$

$3\frac{1}{3} + \frac{1}{3} = \frac{10}{3} + \frac{1}{3}$

$= \frac{11}{3}$

$= 3\frac{2}{3}$



$3\frac{1}{3} + \frac{1}{3} = 3\frac{2}{3}$

Add. Rename or use a number line.

1. $\frac{2}{4} + 1\frac{1}{4} = \underline{\ ?\ }$
$= \underline{\ ?\ }$
$= \underline{\ ?\ }$

2. $4\frac{1}{5} + \frac{3}{5} = \underline{\ ?\ }$
$= \underline{\ ?\ }$
$= \underline{\ ?\ }$

3. $1\frac{1}{8} + \frac{5}{8} = \underline{\ ?\ }$
$= \underline{\ ?\ }$
$= \underline{\ ?\ }$

4. $\frac{2}{7} + 5\frac{3}{7} = \underline{\ ?\ }$

5. $1\frac{1}{6} + 3\frac{5}{6} = \underline{\ ?\ }$

6. $6\frac{3}{4} + \frac{3}{4} = \underline{\ ?\ }$

7. $2\frac{1}{2} + 5\frac{1}{2} = \underline{\ ?\ }$

8. $4\frac{2}{3} + \frac{2}{3} = \underline{\ ?\ }$

9. $6\frac{4}{5} + 2\frac{3}{5} = \underline{\ ?\ }$

0. $6\frac{2}{3} + \frac{2}{6} = \frac{20}{3} + \frac{2}{6}$
$= \frac{40}{6} + \frac{2}{6} = \frac{42}{6}$
$= 7$

11. $\frac{3}{4} + 9\frac{6}{8} = \underline{\ ?\ }$
$= \underline{\ ?\ } = \underline{\ ?\ }$
$= \underline{\ ?\ }$

12. $9\frac{1}{2} + 4\frac{1}{4} = \underline{\ ?\ }$
$= \underline{\ ?\ } = \underline{\ ?\ }$
$= \underline{\ ?\ }$

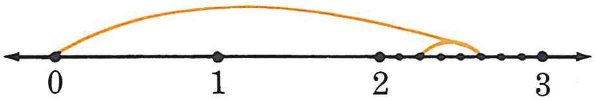
Write an equation and solve it. Then write a sentence to answer the question.

13. Mrs. Turner made $3\frac{1}{2}$ pounds of chocolate fudge, $1\frac{1}{2}$ pounds of peanut butter candy, and $2\frac{1}{2}$ pounds of gum drops. How many pounds of candy did she make?

$$2\frac{5}{8} - \frac{3}{8} = \frac{21}{8} - \frac{3}{8}$$

$$= \frac{18}{8}$$

$$= 2\frac{2}{8}$$



$2\frac{5}{8} - \frac{3}{8} = 2\frac{2}{8}$

Subtract. Rename or use a number line.

1. $5\frac{3}{7} - \frac{2}{7} = \underline{\ ?\ }$

2. $1\frac{4}{9} - \frac{7}{9} = \underline{\ ?\ }$

3. $4\frac{1}{3} - \frac{1}{2} = \underline{\ ?\ }$

4. $2\frac{8}{9} - \frac{8}{9} = \underline{\ ?\ }$

5. $3\frac{1}{5} - \frac{4}{5} = \underline{\ ?\ }$

6. $5\frac{1}{2} - 1\frac{3}{4} = \underline{\ ?\ }$

7. $6\frac{3}{4} - \frac{1}{2} = \underline{\ ?\ }$

8. $2\frac{1}{3} - 1\frac{2}{3} = \underline{\ ?\ }$

9. $6\frac{1}{2} - 1\frac{5}{8} = \underline{\ ?\ }$

Copy each sentence, writing $>$, $<$, or $=$ in place of the ○.

10. $2\frac{1}{3} + \frac{1}{3} \bigcirc \frac{10}{3} + \frac{2}{3}$

11. $\frac{12}{7} + \frac{5}{7} \bigcirc 1\frac{4}{7} + \frac{5}{7}$

12. $3\frac{2}{6} - 1\frac{3}{6} \bigcirc \frac{21}{6} - \frac{9}{6}$

13. $6\frac{1}{3} - 2\frac{1}{6} \bigcirc \frac{19}{3} - \frac{6}{3}$

14. $\frac{48}{12} + \frac{29}{12} \bigcirc 4\frac{10}{12} + 2\frac{5}{12}$

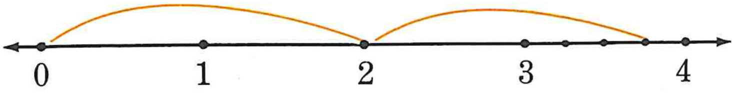
15. $3\frac{6}{7} + 2\frac{5}{7} \bigcirc \frac{19}{7} + \frac{27}{7}$

$+ 1\frac{3}{4} = 2 + (1 + \frac{3}{4})$

$= (2 + 1) + \frac{3}{4}$

$= 3 + \frac{3}{4}$

$= 3\frac{3}{4}$



$2 + 1\frac{3}{4} = 3\frac{3}{4}$

Add. Rename or use a number line.

1. $5 + 3\frac{1}{2} = \underline{\ ?\ }$

2. $2\frac{1}{5} + \frac{2}{5} = \underline{\ ?\ }$

3. $10 + 2\frac{3}{8} = \underline{\ ?\ }$

4. $7\frac{2}{8} + 1\frac{5}{8} = \underline{\ ?\ }$

5. $4\frac{1}{4} + 2 = \underline{\ ?\ }$

6. $6\frac{1}{3} + \frac{1}{3} = \underline{\ ?\ }$

7.

$$\begin{array}{r} 8 \\ + 2 + \frac{1}{7} \\ \hline \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array} \qquad \begin{array}{r} 8 \\ + 2\frac{1}{7} \\ \hline \end{array}$$

8.

$$\begin{array}{r} 9 + \frac{1}{4} \\ +(3 + \frac{1}{4}) \\ \hline \underline{\ ?\ } + \underline{\ ?\ } = \underline{\ ?\ } \end{array} \qquad \begin{array}{r} 9\frac{1}{4} \\ + 3\frac{1}{4} \\ \hline \end{array}$$

9. $\begin{array}{r} 7 \\ + 4\frac{3}{5} \\ \hline \end{array}$

10. $\begin{array}{r} 12\frac{1}{8} \\ + \frac{4}{8} \\ \hline \end{array}$

11. $\begin{array}{r} 8\frac{1}{4} \\ + 4\frac{2}{4} \\ \hline \end{array}$

12. $\begin{array}{r} 9 \\ + 6\frac{4}{5} \\ \hline \end{array}$

13. $\begin{array}{r} 27\frac{3}{5} \\ + 6\frac{1}{5} \\ \hline \end{array}$

14. $\begin{array}{r} 23\frac{4}{6} \\ + 7\frac{1}{6} \\ \hline \end{array}$

15. $\begin{array}{r} 14\frac{2}{6} \\ +14\frac{1}{6} \\ \hline \end{array}$

16. $\begin{array}{r} 9\frac{1}{5} \\ +22\frac{2}{5} \\ \hline \end{array}$

17. $\begin{array}{r} 26\frac{5}{8} \\ + 4\frac{2}{8} \\ \hline \end{array}$

18. $\begin{array}{r} 45\frac{3}{4} \\ + 8\frac{3}{4} \\ \hline \end{array}$

Find the sums.

1. $6 + \frac{5}{8}$ $\quad$ $+(7 + \frac{3}{8})$ $\quad$? + ? = ?

$6\frac{5}{8}$ $\quad$ $+\ 7\frac{3}{8}$ $\quad$ 14 = 14

2. $9 + \frac{7}{10}$ $\quad$ $+(8 + \frac{9}{10})$ $\quad$? + ? = ?

$9\frac{7}{10}$ $\quad$ $+\ 8\frac{9}{10}$ $\quad$? = ?

3. $4\frac{8}{12}$ $\quad$ $+\ 9\frac{7}{12}$ $\quad$ $14\frac{3}{12}$

4. $5\frac{4}{6}$ $\quad$ $+\ 5\frac{4}{6}$ $\quad$ $11\frac{2}{6}$

5. $7\frac{4}{10}$ $\quad$ $+\ 4\frac{8}{10}$ $\quad$ $12\frac{2}{10}$

6. $8\frac{3}{5}$ $\quad$ $+\ 2\frac{4}{5}$ $\quad$ [illegible]

7. $9\frac{9}{11}$ $\quad$ $+\ 6\frac{10}{11}$ $\quad$ $16\frac{8}{11}$

8. $8\frac{8}{15}$ $\quad$ $+\ 7\frac{10}{15}$ $\quad$ $16\frac{3}{15}$

9. $12\frac{9}{16}$ $\quad$ $+\ 2\frac{9}{16}$ $\quad$ $15\frac{2}{16}$

10. $9\frac{13}{20}$ $\quad$ $+\ 9\frac{11}{20}$ $\quad$ [illegible]

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

11. Carol walked $1\frac{1}{4}$ miles on Monday and $1\frac{3}{8}$ miles on Tuesday. How far did Carol walk on these two days?

12. Debbie used $6\frac{1}{12}$ sheets of green paper, $4\frac{7}{12}$ sheets of yellow paper, and $9\frac{11}{12}$ sheets of blue paper to make paper doll clothes. How many sheets of paper did she use?

13. Douglas bought $1\frac{1}{3}$ pounds of jelly beans and $2\frac{5}{6}$ pounds of chocolate drops. How much candy did he buy?

$$\begin{array}{r} 3 + \frac{2}{3} \\ -\quad \frac{1}{3} \\ \hline 3 + \frac{1}{3} = 3\frac{1}{3} \end{array} \qquad \begin{array}{r} 3\frac{2}{3} \\ -\quad \frac{1}{3} \\ \hline 3\frac{1}{3} \end{array}$$

$$\begin{array}{r} 4 + \frac{7}{8} \\ -(2 + \frac{3}{8}) \\ \hline 2 + \frac{4}{8} = 2\frac{4}{8} \end{array} \qquad \begin{array}{r} 4\frac{7}{8} \\ -\ 2\frac{3}{8} \\ \hline 2\frac{4}{8} \end{array}$$

ind the differences.

1. $\begin{array}{r} 9\frac{3}{8} \\ -\ 6\frac{1}{8} \\ \hline 3\frac{2}{8} \end{array}$

2. $\begin{array}{r} 5\frac{5}{7} \\ -\ 3\frac{1}{7} \\ \hline 2\frac{4}{7} \end{array}$

3. $\begin{array}{r} 8\frac{5}{6} \\ -\ 1\frac{4}{6} \\ \hline 7\frac{1}{6} \end{array}$

4. $\begin{array}{r} 2\frac{4}{9} \\ -\ \frac{2}{9} \\ \hline 2\ [illegible] \end{array}$

5. $\begin{array}{r} 4\frac{11}{12} \\ -\ 3\frac{3}{12} \\ \hline 1\frac{8}{12} \end{array}$

6. $\begin{array}{r} 12\frac{6}{9} \\ -\ 7\frac{2}{9} \\ \hline 5\frac{4}{9} \end{array}$

7. $\begin{array}{r} 34\frac{15}{16} \\ -18\frac{11}{16} \\ \hline \end{array}$

8. $\begin{array}{r} 62\frac{9}{15} \\ -47\ \frac{2}{5} \\ \hline \end{array}$

9. $\begin{array}{r} 30\frac{8}{11} \\ -21\frac{3}{11} \\ \hline \end{array}$

10. $\begin{array}{r} 42\frac{7}{10} \\ -29\frac{6}{10} \\ \hline \end{array}$

11. $\begin{array}{r} 402\frac{1}{2} \\ -166\frac{1}{2} \\ \hline \end{array}$

12. $\begin{array}{r} 813\frac{3}{4} \\ -\ 95\frac{1}{2} \\ \hline \end{array}$

13. $\begin{array}{r} 572\frac{6}{8} \\ -396\frac{3}{8} \\ \hline \end{array}$

14. $\begin{array}{r} 690\frac{9}{12} \\ -583\frac{2}{12} \\ \hline \end{array}$

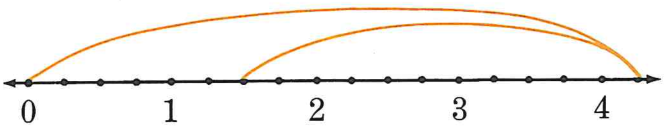
15. $\begin{array}{r} 708\frac{4}{5} \\ -\ 80\frac{3}{5} \\ \hline \end{array}$

or each story problem, write an equation and solve it.
hen write a sentence to answer the question.

Gene's father took him to a baseball game. They were away from home $4\frac{3}{4}$ hours. The trip to and from the stadium took $1\frac{1}{2}$ hours. How long were they at the stadium?

Susan had $3\frac{2}{3}$ yards of ribbon. She used $1\frac{3}{6}$ yards to wrap presents. How much did she have left?

$$\begin{array}{r} 4+\frac{1}{4} \\ -(2+\frac{3}{4}) \\ \hline \end{array} \Rightarrow \begin{array}{r} 3+\frac{5}{4} \\ -(2+\frac{3}{4}) \\ \hline 1+\frac{2}{4}=1\frac{2}{4} \end{array}$$



$4\frac{1}{4} - 2\frac{3}{4} = 1\frac{1}{2}$

Subtract. Rename or use a number line.

1. $\begin{array}{r} 5 \\ -\ 1\frac{2}{3} \\ \hline \end{array} \Rightarrow \begin{array}{r} 4\frac{?}{3} \\ -\ 1\frac{2}{3} \\ \hline \end{array}$

2. $\begin{array}{r} 4\frac{2}{7} \\ -\ 2\frac{3}{7} \\ \hline \end{array} \Rightarrow \begin{array}{r} \underline{?} \\ -\ \underline{?} \\ \hline \end{array}$

3. $\begin{array}{r} 7\frac{4}{8} \\ -\ 1\frac{7}{8} \\ \hline \end{array} \Rightarrow \begin{array}{r} \underline{?} \\ -\ \underline{?} \\ \hline \end{array}$

4. $\begin{array}{r} 8\frac{2}{5} \\ -\ 3\frac{4}{5} \\ \hline \end{array}$

5. $\begin{array}{r} 6\frac{1}{10} \\ -\ 2\frac{8}{10} \\ \hline \end{array}$

6. $\begin{array}{r} 5\frac{3}{9} \\ -\ 4\frac{7}{9} \\ \hline \end{array}$

7. $\begin{array}{r} 9\frac{8}{12} \\ -\ 2\frac{11}{12} \\ \hline \end{array}$

8. $\begin{array}{r} 7\frac{14}{16} \\ -\ 3\frac{15}{16} \\ \hline \end{array}$

9. $\begin{array}{r} 9\frac{9}{13} \\ -\ 6\frac{12}{13} \\ \hline \end{array}$

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

10. Nick's mother bought a 5-pound bag of sugar. She used $1\frac{1}{4}$ pounds for cookies and $2\frac{3}{8}$ pounds for pies. How much sugar did she have left?

11. When Paul was two years old, he was $34\frac{1}{2}$ inches tall. He is now ten years old, and is $51\frac{3}{16}$ inches tall. How much has he grown in eight years?

REVIEW

1. At the circus, Jim spent \$1.45, Rick spent \$2.15, and Ron spent \$1.65. Find the average amount of money spent by each boy.

Copy each sentence, writing +, −, or × in place of the △.

2. $\frac{1}{2} \triangle \frac{1}{3} = \frac{1}{6}$

3. $\frac{1}{2} \triangle \frac{1}{3} = \frac{5}{6}$

4. $\frac{3}{4} \triangle \frac{1}{2} = \frac{1}{4}$

5. $\frac{9}{5} \triangle \frac{6}{5} = 3$

6. $\frac{9}{5} \triangle \frac{6}{5} = \frac{54}{25}$

7. $\frac{9}{5} \triangle \frac{6}{5} = \frac{3}{5}$

8. $\frac{1}{2} \triangle 15 = 7\frac{1}{2}$

9. $\frac{13}{7} \triangle \frac{2}{14} = 2$

Copy each sentence, writing >, <, or = in place of the ○.

10 $\frac{3}{7}$ ● $\frac{3}{8}$

11. $\frac{2}{5}$ ⑦ $\frac{3}{5}$

12. $\frac{4}{7}$ ④ $\frac{2}{3}$

13. $\frac{18}{3}$ ④ $\frac{24}{4}$

14. $\frac{1}{5} + \frac{4}{10}$ ④ $\frac{1}{5} \times \frac{4}{10}$

15. $7\frac{1}{2} + 6\frac{1}{4}$ ● $\frac{25}{4} + \frac{15}{2}$

16. $9\frac{5}{8} - \frac{7}{8}$ ○ $\frac{49}{8} - \frac{7}{8}$

17. $8 \times \frac{1}{3}$ ○ $\frac{2}{6} \times \frac{16}{2}$

Copy and complete each table.

8.

×	$\frac{1}{2}$	$\frac{3}{4}$	?	$\frac{7}{4}$
?	$\frac{2}{6}$	?	$\frac{10}{9}$	?
$\frac{5}{4}$	?	?	?	?

19.

+	$\frac{1}{3}$	$\frac{3}{2}$	?	$\frac{1}{6}$
$\frac{5}{6}$	?	?	$\frac{9}{6}$	?
?	$\frac{5}{3}$	?	?	?

Solve the problems.

1. 7845 + 9768 = 17613

2. 8035 − 4976 = 3059

3. 2951 + 7049 = 1,000

4. 12,000 − 6,374 = 5626

5. 473 × 8 = 3784 (5 2)

6. 87 × 76 = 65922 (5)

7. 593 × 15

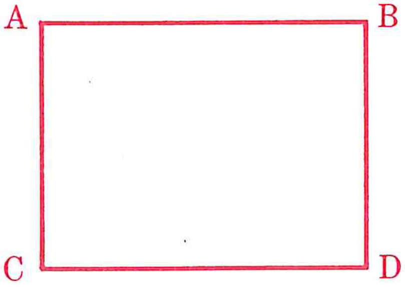
8. 782 × 37

9. 9 ⟌ 234 — 26 (18, 54)

10. 18 ⟌ 126 — 7 (5, 126)

11. 27 ⟌ 918

12. 56 ⟌ 1512



13. Name the line segments in the picture.

14. Name the angles in the picture.

15. All of the angles are ___?___ angles.

16. The figure represented is called a ___?___.

Copy and complete both tables.

17.

Inches	Feet	Yards
36	?	?
?	216	?
?	?	9
?	12	?

18.

Centimeters	Decimeters	Meters
?	?	2
1600	?	?
?	820	?
?	?	5

DIVISION WITH REMAINDER

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Mrs. Ross has 341 sheets of paper to distribute among her 31 students. How many sheets of paper will each child get?

2. Mrs. Ross's class took a test that was to be completed in 2700 seconds. How many minutes did the children have to finish the test?

3. The eight highest scores on the test were 95, 97, 96, 96, 93, 91, 89, and 87. What was the average of these eight highest scores?

Copy and complete each multiplication table.

4.

×	9	?	6
?	108	60	?
30	?	150	?
40	?	?	?
?	630	?	?
80	?	?	?

5.

×	13	?	25
27	?	810	?
?	65	?	?
?	?	540	?
11	?	?	?
?	?	?	825

Find the quotients.

6. $\begin{array}{r}290\\3\overline{)870}\end{array}$

7. $\begin{array}{r}121\\60\overline{)7260}\end{array}$

8. $\begin{array}{r}20\\24\overline{)4968}\end{array}$

9. $9\overline{)729}$

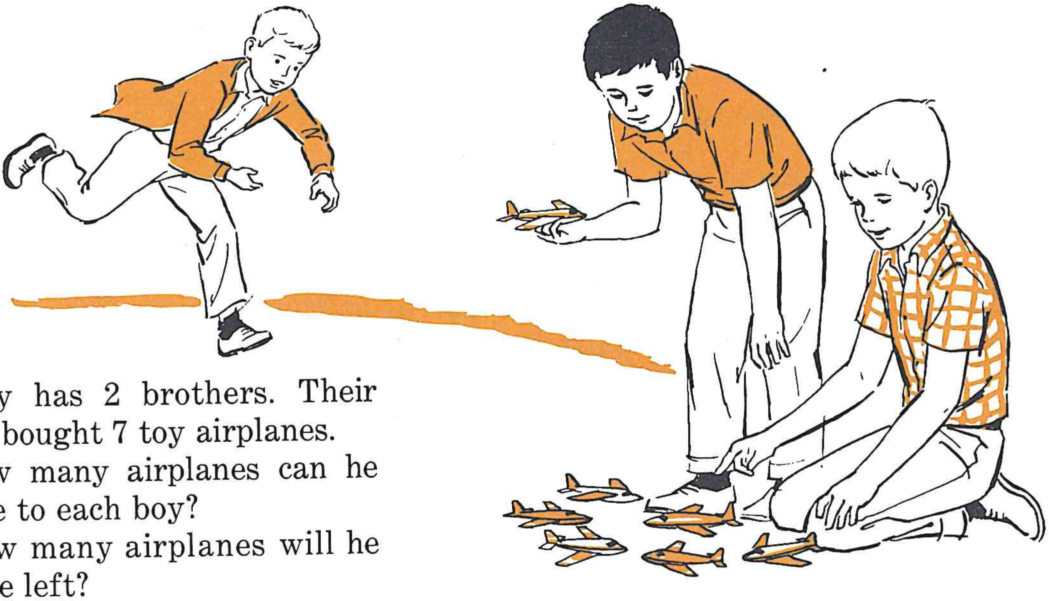
10. $76\overline{)912}$

11. $58\overline{)3712}$

12. $20\overline{)460}$

13. $36\overline{)1584}$

14. $42\overline{)924}$



Tommy has 2 brothers. Their father bought 7 toy airplanes.

1. How many airplanes can he give to each boy?
2. How many airplanes will he have left?

3. Copy and complete Tommy's little brother's solution to this problem:

$$\begin{array}{r|r|l} 3 & 7 & \\ & -\;3 & \square \\ \cline{2-2} & \square & \\ & -\;3 & \square \\ \cline{2-3} & \square & \square \end{array}$$

4. Copy and complete Tommy's solution to the problem:

$$\begin{array}{r} \square \\ 3\,\overline{)\;7} \\ -\;6 \\ \hline \square \end{array}$$

Tommy checked his answer like this:

$(3 \times \square) + \square = 7$

Copy the problems, writing the correct digit in place of each $\square$.

5. $$\begin{array}{r} \square \\ 3\,\overline{)\;5} \\ -\;\square \\ \hline \square \end{array}$$

$(3 \times \square) + \square = 5$

6. $$\begin{array}{r} \square \\ 5\,\overline{)\;1\,8} \\ -\;\square\square \\ \hline \square \end{array}$$

$(5 \times \square) + \square = 18$

7. $$\begin{array}{r} \square \\ 7\,\overline{)\;4\,1} \\ -\;\square\square \\ \hline \square \end{array}$$

$(7 \times \square) + \square = 4$

In each problem above, the number left over is the *remainder*

8. In each problem the remainder is less than the ___?___.

1. Divide each number by 4. Write only the remainders.

A	B	C	D	E	F
9	14	23	25	30	35

2. Divide each number by 7. Write only the remainders.

G	H	I	J	K	L
15	23	31	39	47	62

3. Divide each number by 7. Write only the remainders.

M	N	O	P	Q	R
82	10	48	20	38	30

Divide. Then copy and complete the equation to check your answers.

4.

$$\begin{array}{r} \square \\ 8\,\overline{)\,2\;8} \\ -\,\square\square \\ \hline \square \end{array}$$

(8 × __?__) + __?__ = 28

5. $6\,\overline{)\,33}$

(6 × __?__) + __?__ = 33

6. $5\,\overline{)\,49}$

(5 × __?__) + __?__ = 49

7. $7\,\overline{)\,50}$

7 × __?__) + __?__ = 50

8. $3\,\overline{)\,34}$

(3 × __?__) + __?__ = 34

9. $20\,\overline{)\,63}$

(20 × __?__) + __?__ = 63

Divide. Check your answers as shown.

10.

$$\begin{array}{r} \square \\ 3\,\overline{)\,1\;7} \\ -\,\square\square \\ \hline \square \end{array} \qquad \begin{array}{r} \square \\ \times\quad 3 \\ \hline \square\square \\ +\quad \square \\ \hline \square\square \end{array}$$

(3 × __?__) + __?__ = 17

1. $5\,\overline{)\,23}$ **12.** $14\,\overline{)\,29}$ **13.** $11\,\overline{)\,76}$ **14.** $7\,\overline{)\,69}$ **15.** $13\,\overline{)\,68}$

Divide. Check your answers as shown.

1. $80\,\overline{)\,604}$

$$\begin{array}{r} \square \\ \times\ 8\ 0 \\ \hline \square\square\square \\ +\ \square\square \\ \hline \square\square\square \end{array}$$

$(80 \times \underline{\ ?\ }) + \underline{\ ?\ } = 604$

2. $24\,\overline{)\,389}$ **3.** $40\,\overline{)\,596}$ **4.** $36\,\overline{)\,2030}$ **5.** $64\,\overline{)\,7961}$

6. $78\,\overline{)\,5003}$ **7.** $5\,\overline{)\,93}$ **8.** $4\,\overline{)\,98}$ **9.** $6\,\overline{)\,499}$

10. $9\,\overline{)\,204}$ **11.** $30\,\overline{)\,783}$ **12.** $23\,\overline{)\,324}$ **13.** $46\,\overline{)\,1706}$

14. $75\,\overline{)\,3455}$ **15.** $87\,\overline{)\,4632}$ **16.** $98\,\overline{)\,4563}$ **17.** $72\,\overline{)\,3654}$

18. $96\,\overline{)\,4837}$ **19.** $27\,\overline{)\,1745}$ **20.** $88\,\overline{)\,4098}$ **21.** $79\,\overline{)\,6923}$

Jane's mother bought 7 candy bars for Jane and her 2 sisters.

1. How many whole candy bars can she give to each girl?

2. How many candy bars will she have left?

Jane said, "Let's split the candy left over so that each of us gets part of a bar."

3. What part of a candy bar should each girl get?

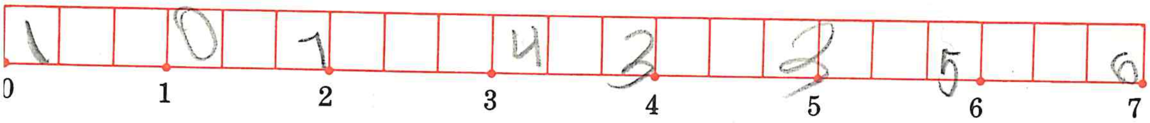
4. How many candy bars should each girl get?

5. If there are 11 apples to be divided among 3 boys, how many whole apples will each boy get?

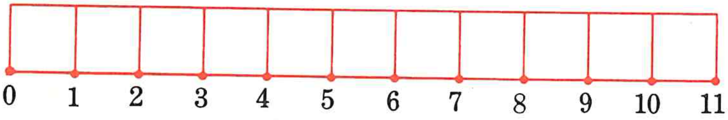
6. How many apples will be left over?

7. If each apple left over is cut so that each boy gets the same amount, how much of each of these apples will each boy get?

8. How many apples will each boy get?



9. Divide a 7-inch strip of paper into 3 parts of the same size. How many inches long is each part?



0. Divide an 11-centimeter strip of paper into 3 parts of the same size. How many centimeters long is each part?

Solve each story problem. Write a sentence to answer each question.

1. Bill had 15 candy bars to share with his three friends. How many candy bars should each boy get?

$$\begin{array}{r} \square \\ 4\,\overline{)\,1\;5} \\ -\,\square\square \\ \hline \square \end{array}$$

2. Betty bought 16 sticks of licorice candy for herself and her friends. How many sticks of licorice should each girl get?

3. Mrs. Smith gave 25 oranges to 4 boys. If each boy got the same amount, how many oranges did each boy get?

4. Tom and Bill have a board 13 feet long. If they cut the board into 4 equal lengths, how long will each piece be?

5. Ed and Tim have 257 marbles. If they divide the marbles evenly between them, how many marbles will each boy get?

6. Last winter John and Bill worked together shoveling snow. In all, they earned 15 dollars. How much did each boy earn?

7. Fifteen children in Mrs. Smith's class rode the bus to the zoo. Mrs. Smith asked two children to sit on each seat. How many seats did the children need?

ME

1. Mother had 15 balloons left over after a party. She gave the same number of balloons to Nancy and Susan. If they divided them equally, how many balloons did each girl get?

2. Connie helped in the school kindergarten 55 hours in 4 weeks. What was the average number of hours she worked each week?

M

3. During the last 5 days Jimmy worked on the School Patrol for a total of 189 minutes. What was the average number of minutes he spent each day?

4. Bob delivered papers 6 days last week. He spent a total of 155 minutes. What was the average number of minutes he spent each day?

5. Last month Joan had 7 baby-sitting jobs. She worked for a total of 24 hours. What was the average number of hours she worked on each job?

6. Glen mowed 3 lawns last week. He earned a total of $4.97. What was the average amount he earned on each job?

Divide. Check your answers as shown.

1. $6\overline{)4431}$ $\quad\begin{array}{r} \square\square\square \\ \times \quad 6 \\ \hline \end{array}$ $\quad(6 \times \underline{\ ?\ }) + \underline{\ ?\ } = 4431$

2. $7\overline{)3052}$ **3.** $90\overline{)3050}$ **4.** $30\overline{)3060}$

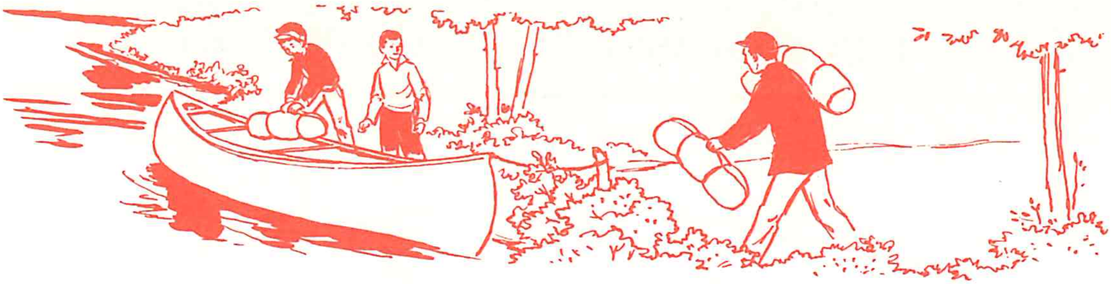
5. $8\overline{)1242}$ **6.** $5\overline{)1576}$ **7.** $18\overline{)1892}$

8. $30\overline{)811}$ **9.** $75\overline{)6075}$ **10.** $37\overline{)4586}$

Copy and complete each table.

11.	Estimated Quotient	Quotient	Remainder
$63 \div 15 = b$	?	?	?
$561 \div 26 = d$	?	?	?
$83 \div 17 = k$	?	?	?
$805 \div 62 = g$	?	?	?
$7030 \div 81 = m$	?	?	?
$945 \div 91 = w$	?	?	?

12.	Estimated Quotient	Quotient	Remainder
$71 \div 14 = a$	?	?	?
$59 \div 11 = c$	?	?	?
$632 \div 49 = e$	?	?	?
$3699 \div 55 = s$	?	?	?
$978 \div 39 = v$	?	?	?
$8260 \div 41 = r$	?	?	?



Solve the story problems. Write a sentence to answer each question.

1. The Hoffman family plan to go on a canoe trip. Mr. Hoffman wants to put 133 cans of food into 4 food packs of the same size. How many cans of food will he put into each pack?

2. The Hoffmans had $5.36 to spend for dried fruit. The dried fruit cost $.41 per package. How many packages could they buy?

3. There are 24 slices in a pound of canned bacon. How many slices will each of the 4 Hoffmans get from two pounds of canned bacon?

4. The children can hike 30 yards per minute. How many minutes will it take them to hike 3825 yards?

5. Beth has $2.00. How many doll dresses can she buy if each dress costs $.24?

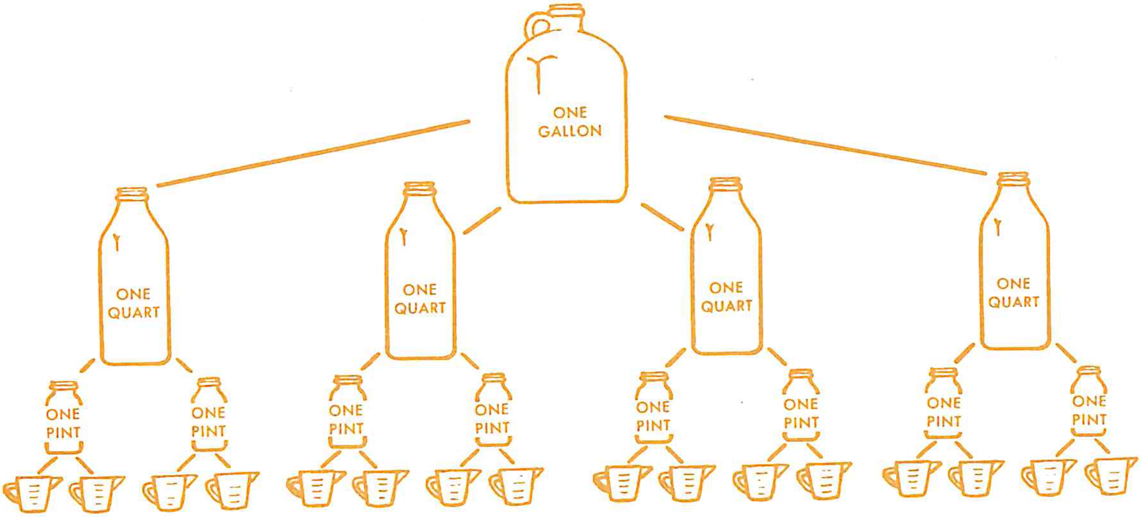
6. Mrs. Lane wants to make 425 chocolate chip cookies for a bake sale. She uses one package of chocolate chips to make 52 cookies. How many packages must she buy?

7. Ted wants to swim 100 yards. The swimming pool is 48 feet long. How many times must he swim the length of the pool?

. The 20 boys in Mrs. Williamson's class want to form baseball teams. If each baseball team needs at least 9 players, how many teams can be formed?

. Mrs. Stone can fill 4 glasses with 1 quart of milk. Yesterday her 3 children drank 1 gallon of milk. What was the average number of glasses of milk that each child drank?

LIQUID MEASUREMENT AND WEIGHT



1. How many cups of milk are in 1 pint?
2. How many cups of milk are in 1 quart?
3. How many cups of milk are in 1 gallon?
4. How many pints of milk are in 1 quart?
5. How many pints of milk are in 1 gallon?
6. How many quarts of milk are in 1 gallon?
7. How many quarts of milk are in 1 half-gallon?
8. How many pints of milk are in 1 half-gallon?
9. How many cups of milk are in 1 half-gallon?
10. There is 1 quart of milk in __?__ gallon.
11. How many pints of milk are in 1 pint 1 cup?
12. How many quarts of milk are in 2 quarts 1 pint?
13. How many gallons of milk are in 1 gallon 3 quarts?

---

14. Mother bought $3\frac{1}{4}$ gallons of milk. How many quarts of milk is this?

Copy and complete each chart.

1.

Pints	1	2	3	4	5	6	7	8	9	10	11	12
Cups	?	?	?	?	?	?	?	?	?	?	?	?

2.

Cups	1	2	3	4	5	6	7	8	9	10	11	12
Pints	?	?	?	?	?	?	?	?	?	?	?	?

Mary put 1 pint 1 cup of milk into a thermos jug. Susan put $3\frac{1}{2}$ pints of milk into the same jug. How much milk is in the jug?

Mary thought, "1 pint 1 cup is the same as $1\frac{1}{2}$ pints.

$$1\frac{1}{2} + 3\frac{1}{2} = \underline{\ ?\ }$$

There are __?__ pints of milk in the ug."

Susan thought, "$3\frac{1}{2}$ pints is the same as 3 pints 1 cup.

$$\begin{array}{r} 1 \text{ pint } \ 1 \text{ cup} \\ +3 \text{ pints } 1 \text{ cup} \\ \hline \end{array}$$

__?__ pints 2 cups = __?__ pints

There are __?__ pints in the jug."

Solve the story problems.

3. Steve put 2 gallons 1 quart of cold water in an empty aquarium. Lewis put 9 quarts of warm water in the aquarium. How much water is in the aquarium?

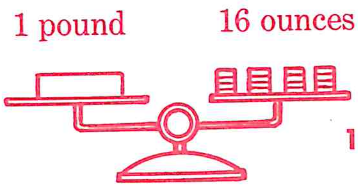
4. John had 3 quarts 2 cups of orange drink. If he gave one cup of it to each guest, how many guests could he serve?

. Nancy had 3 gallons 1 quart of cider and bought 5 quarts more. How many gallons and quarts of cider does she have now?

. Pete and Jim each caught $5\frac{1}{2}$ pints of rain water for their polliwogs. Together they had __?__ pints or __?__ quarts __?__ pints of rain water.

. Jane used 1 pint 1 cup of milk for a cake and 6 cups of milk for custard. How much milk did she use in all?

Copy and complete the table.



1.

POUNDS	$\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
OUNCES	?	?	?	?	?

Solve each problem.

2. Mrs. Clark bought 19 ounces of beef and 13 ounces of veal to make a meat loaf. How many ounces of meat did she buy? This is the same amount as ___?___ pounds.

3. The man in the produce department told Bill that a grapefruit weighed 8 ounces, an orange 6 ounces, and a lemon 4 ounces. In all, they weighed ___?___ ounces. This is the same amount as ___?___ pound and ___?___ ounces.

4. One week Sue's puppy ate 2 pounds 9 ounces of dog food. The week before he had eaten 2 pounds 12 ounces of food. During the two weeks, the puppy ate 4 pounds ___?___ ounces of dog food. This is the same amount as ___?___ pounds 5 ounces.

5. Sue weighs 73 pounds. When she held her puppy and stood on the bathroom scales, the dial showed 82 pounds. Sue's puppy weighs ___?___ pounds. Sue's puppy weighs ___?___ ounces.

6. Mrs. Clark bought a 5-pound roast to serve at a dinner for 8 people. Mrs. Clark bought ___?___ ounces of meat for each person.

The girls in the fourth grade at Lincoln School sold bags of candy. Each bag of candy weighed 4 ounces. Copy and complete the table to show how much the bags weighed.

1 bag	2 bags	3 bags	5 bags	8 bags
4 oz.	? oz.	? oz.	? oz.	? oz.
? lb.	? lb.	? lb.	? lb.	? lb.
? lb. ? oz.	? lb. ? oz.	? lb. ? oz.	? lb. ? oz.	? lb. ? oz.

Solve the story problems.

Russell weighed his pets. His cat weighs 8 pounds 3 ounces. His dog weighs 25 pounds. His turtle weighs 5 ounces. How much do all of his pets weigh?

Henry's ball team has 4 new bats. Each bat weighs 3 pounds 6 ounces. How much do all 4 bats weigh?

Clark bought a 3-pound box of beanbags. If each beanbag weighed 8 ounces, how many beanbags did he buy?

Ginny mailed two packages to her Grandmother. One package weighed 3 pounds 8 ounces and the other weighed 7 pounds 10 ounces. How much did both packages weigh?

Copy and complete the table.

+	2 lbs. 3 oz.	$4\frac{1}{2}$ lbs.	7 lbs. 13 oz.
5 lbs.	?	?	?
6 lbs. 15 oz.	?	?	?
13 oz.	?	?	?
$3\frac{1}{4}$ lbs.	?	?	?

Solve each problem.

1. Jerry is 4 feet 8 inches tall. His father is 6 feet 2 inches tall. Jerry's sister, Karen, wants to know how much shorter Jerry is than his father. Karen wrote:

$$\begin{array}{r} 6\text{ ft. }2\text{ in.} \\ -4\text{ ft. }8\text{ in.} \\ \hline \end{array}$$

1 ft. 6 in

When Karen began to solve the problem, she realized that she must rename 6 ft. 2 in. So she wrote:

$$\begin{array}{rcr} 6\text{ ft. }2\text{ in.} & = & 5\text{ ft. }14\text{ in.} \\ -4\text{ ft. }8\text{ in.} & = & -4\text{ ft. }\ 8\text{ in.} \\ \hline & & 1\text{ ft. }\ 6\text{ in.} \end{array}$$

4 1 in [illegible]

Jerry is __?__ foot __?__ inches shorter than his father.

2. Jenny and her suitcase weigh 75 pounds 13 ounces. Her suitcase weighs 8 pounds 15 ounces. How much does Jenny weigh?

3. Ethel bought 2 pounds 8 ounces of candy for a party. There were 10 ounces of candy left after the party. How much candy was eaten?

4. Beth's baby brother weighed 16 pounds 12 ounces last month. Now he weighs 18 pounds 4 ounces. How much weight did he gain during the month?

Copy and complete each sentence, writing >, <, or = in place of the ○.

5. 2 qt. 1 pt. ○ 1 qt. 3 pt.
6. 16 c. ○ 1 gal.
7. $1\frac{3}{4}$ gal. ○ 6 qt.
8. $\frac{1}{2}$ gal. ○ 3 qt.
9. 24 oz. ○ 2 lb.
10. 6 ft. 2 in. ○ 80 in.
11. 4 qt. 6 pt. ○ 1 gal. 12 c.
12. 3 gal. 1 qt. ○ 13 qt.

Vhat word is missing in each sentence?

1. The seat of a teacher's chair is 16 __?__ above the floor.

2. The gas tank holds 20 __?__ of gasoline.

3. A fourth-grade boy could weigh about 80 __?__.

4. The height of a tall man is about 2 __?__.

5. A steak could weigh about $1\frac{1}{4}$ __?__.

6. A pail will hold about 20 __?__ of water.

7. The lake is 4 __?__ long.

8. A water glass holds about 1 __?__ of liquid.

9. A marble weighs about $\frac{1}{2}$ __?__.

0. A crayon is about 3 __?__ long.

1. Jim's puppy weighs 3 __?__.

2. Mary ran $\frac{1}{4}$ __?__ to school.

3. Louise's bite of candy weighed $\frac{1}{3}$ __?__.

4. Tom jumped across a puddle 3 __?__ wide.

---

rrange the measures from smallest to largest.

5. 1 ft.
8 in.
$\frac{1}{4}$ yd.

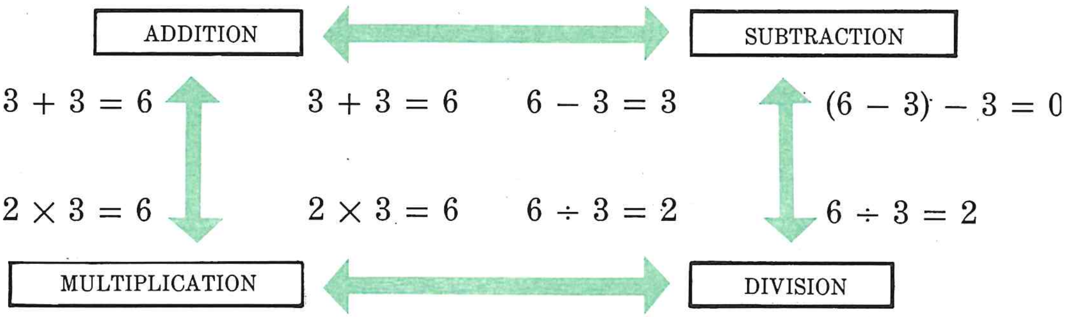
16. 5 c.
$\frac{1}{4}$ gal.
3 pts.

17. 3 qts.
1 gal. 1 pt.
30 c.

18. 54 oz.
3 lb. 4 oz.
$3\frac{1}{2}$ lbs.

19. 9 qts.
$1\frac{3}{4}$ gal.
17 pts.

OPERATIONS ON WHOLE NUMBERS



$3 + 3 = 6$ $\quad$ $3 + 3 = 6$ $\quad$ $6 - 3 = 3$ $\quad$ $(6 - 3) - 3 = 0$

$2 \times 3 = 6$ $\quad$ $2 \times 3 = 6$ $\quad$ $6 \div 3 = 2$ $\quad$ $6 \div 3 = 2$

Copy and complete each table.

A	+		−	
9	7	16	7	?
	12	24	12	?
	8	15	8	?
6	?	15	?	6

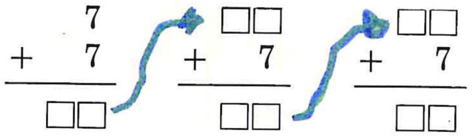
B	−		+	
23	15	?	15	?
?	11	34	11	?
25	?	16	?	25
?	80	30	80	?

C	×		÷	
5	?	45	?	5
6	9	?	9	?
?	8	48	8	?
7	?	56	?	7

D	÷		×	
49	?	7	?	49
72	8	?	8	?
?	4	36	4	?
120	?	12	?	120

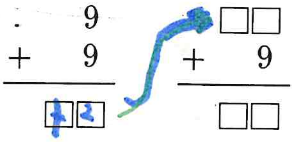
Find the products by repeated addition.

1.



$4 \times 7 =$ ____?____

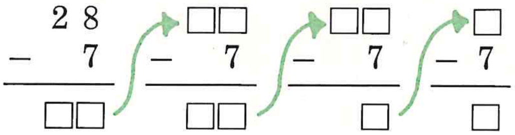
2.



$3 \times 9 =$ ____?____

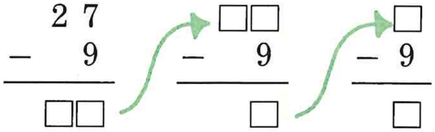
Find the quotients by repeated subtraction.

3.



$28 \div 7 =$ ____?____

4.



$27 \div 9 =$ ____?____

opy and complete these sequences.

5. 0, 2, 4, 6, 8, 10, 12, 14, 16

6. 20, 19, ____?____, 17, 16, ____?____, ____?____, ____?____, ____?____

7. 2, 4, 8, ____?____, 32, ____?____, 128, ____?____, ____?____

8. 16, 20, ____?____, 28, ____?____, ____?____, ____?____, ____?____, 48

9. 51, 46, 41, ____?____, ____?____, ____?____, 21, ____?____, ____?____

10. 512, 256, ____?____, ____?____, 32, 16, ____?____, 4, 2

11. 2, 6, 18, ____?____, ____?____, ____?____, 1458, ____?____, ____?____, ____?____

12. 0, 12, 24, 36, ____?____, ____?____, ____?____, ____?____, ____?____, ____?____

13. 160, 145, ____?____, 115, ____?____, ____?____, ____?____, ____?____, ____?____, ____?____

Find the operation. Copy and complete the numbered sentences.
If there is no whole-number answer, write an X in place of the ?.

29 ▲ 7 = 36

7 ▲ 29 = 36

1. (42 ▲ 5) ▲ 7 = ___ ▲ 7 = ?
2. 42 ▲ (5 ▲ 7) = 42 ▲ ? = ?
3. 0 ▲ a = ?
4. a ▲ 0 = ?
5. What operation is used?
6. Is it commutative?
7. Is it associative?
8. What is its identity element?

6 ● 8 = 48

8 ● 6 = 48

9. (5 ● 3) ● 2 = ? ● 2 = ?
10. 5 ● (3 ● 2) = 5 ● ? = ?
11. 1 ● b = ?
12. b ● 1 = ?
13. What operation is used?
14. Is it commutative?
15. Is it associative?
16. What is its identity element?

84 ▼ 9 = 75

9 ▼ 84 = ?

32 ▼ 5 = 27

17. 5 ▼ 32 = ?
18. (58 ▼ 8) ▼ 3 = ? ▼ 3 = ?
19. 58 ▼ (8 ▼ 3) = 58 ▼ ? = ?
20. What operation is used?
21. Is it commutative?
22. Is it associative?

54 ■ 9 = 6

9 ■ 54 = ?

70 ■ 10 = 7

23. 10 ■ 70 = ?
24. (81 ■ 9) ■ 3 = ? ■ 3 = ?
25. 81 ■ (9 ■ 3) = 81 ■ ? = ?
26. What operation is used?
27. Is it commutative?
28. Is it associative?

3 ✱ 2 = 2 ✱ 3

1. The operation ✱ is ___?___ or ___?___.

(7 ★ 8) ★ 9 = 7 ★ (8 ★ 9)

2. The operation ★ is ___?___ or ___?___.

3 ● (9 ▲ 2) = (3 ● 9) ▲ (3 ● 2)

3. The operations ● and ▲ are

___?___ and ___?___

or ___?___ and ___?___.

(16 ■ 4) ◆ 2 = (16 ◆ 2) ■ (4 ◆ 2)

4. The operations ■ and ◆ are

___?___ and ___?___

or ___?___ and ___?___

or ___?___ and ___?___

or ___?___ and ___?___.

Match each example in the first column with the correct statement n the second column.

5. $(4 \times 6) \times 10 = 4 \times (6 \times 10)$

6. $42 \div 7 \neq 7 \div 42$

7. $4 \times 18 = (4 \times 10) + (4 \times 8)$

8. $13 + 7 = 7 + 13$

9. $0 + 123 = 123$

0. $118 - 59 \neq 59 - 118$

1. $1 \times 63 = 63$

2. $(4 + 16) + 8 = 4 + (16 + 8)$

3. $(24 \div 8) \div 3 \neq 24 \div (8 \div 3)$

a Addition is commutative.

b Multiplication is associative.

c Zero is the identity element for addition.

d Division is not commutative.

e Multiplication is distributive over addition.

f Subtraction is not associative.

g One is the identity element for multiplication.

h Subtraction is not commutative.

i Addition is associative.

j Division is not associative.

Find the operation. Copy and complete the numbered sentences.

2 ▲ 3 = 3

9 ▲ 7 = 9

36 ▲ 17 = 36

12 ▲ 12 = 12

1. 7 ▲ 11 = ?
2. 76 ▲ 5 = ?
3. 8 ▲ 8 = ?
4. 140 ▲ 130 = ?
5. 13 ▲ 27 = ?
6. 27 ▲ 13 = ?
7. (7 ▲ 9) ▲ 14 = ? ▲ ?
   = ?
8. 7 ▲ (9 ▲ 14) = ? ▲ ?
   = ?
9. Describe the operation used.
10. Is this operation commutative?
11. Is this operation associative?

9 ● 12 = 9

15 ● 5 = 5

13 ● 8 = 8

10 ● 10 = 10

12. 6 ● 11 = ?
13. 150 ● 35 = ?
14. 766 ● 869 = ?
15. 276 ● 275 = ?
16. 37 ● 28 = ?
17. 28 ● 37 = ?
18. (6 ● 4) ● 3 = ? ● ?
    = ?
19. 6 ● (4 ● 3) = ? ● ?
    = ?
20. Describe the operation used.
21. Is this operation commutative?
22. Is this operation associative?

Find the operation. Copy and complete the numbered sentences. If there is no whole-number answer, write an X in place of the $\underline{\ ?\ }$.

$6 \ast 7 = 7$

$18 \ast 3 = 3$

$3 \ast 18 = 18$

$12 \ast 0 = 0$

1. $14 \ast 6 = \underline{\ ?\ }$
2. $6 \ast 14 = \underline{\ ?\ }$
3. $8 \ast 11 = \underline{\ ?\ }$
4. $493 \ast 293 = \underline{\ ?\ }$
5. $506 \ast 605 = \underline{\ ?\ }$
6. $6000 \ast 15 = \underline{\ ?\ }$
7. $(10 \ast 8) \ast 13 = \underline{\ ?\ } \ast \underline{\ ?\ }$
$= \underline{\ ?\ }$
8. $10 \ast (8 \ast 13) = \underline{\ ?\ } \ast \underline{\ ?\ }$
$= \underline{\ ?\ }$
9. Describe the operation used.

0. Is this operation commutative?

1. Is this operation associative?

$5 \smile 3 = 4$

$6 \smile 8 = 7$

$6 \smile 7 = \underline{\ ?\ }$

$9 \smile 9 = 9$

12. $5 \smile 7 = \underline{\ ?\ }$
13. $7 \smile 5 = \underline{\ ?\ }$
14. $8 \smile 3 = \underline{\ ?\ }$
15. $10 \smile 20 = \underline{\ ?\ }$
16. $20 \smile 10 = \underline{\ ?\ }$
17. $10 \smile 8 = \underline{\ ?\ }$
18. $(6 \smile 8) \smile 9 = \underline{\ ?\ } \smile \underline{\ ?\ }$
$= \underline{\ ?\ }$
19. $6 \smile (8 \smile 9) = \underline{\ ?\ } \smile \underline{\ ?\ }$
$= \underline{\ ?\ }$
20. Describe the operation used.
21. Is this operation commutative?
22. Is this operation associative?

Find the operations. Copy and complete the numbered sentences. If there is no whole-number answer, write an X in place of the ?.

3 ✸ 4 = 14

6 ✸ 2 = 16

10 ✸ 5 = 30

5 ✸ 10 = 30

1. 3 ✸ 7 = ?
2. 8 ✸ 1 = ?
3. 2 ✸ 12 = ?
4. 15 ✸ 6 = ?
5. 0 ✸ 13 = ?
6. 8 ✸ 9 = ?
7. (2 ✸ 5) ✸ 3 = ? ✸ ?
   = ?
8. 2 ✸ (5 ✸ 3) = ? ✸ ?
   = ?
9. Describe the operation used.
10. Is this operation commutative?
11. Is this operation associative?

3 ✻ 4 = 28

2 ✻ 6 = 48

1 ✻ 4 = 20

7 ✻ 3 = 30

12. 6 ✻ 3 = ?
13. 2 ✻ 4 = ?
14. 6 ✻ 5 = ?
15. 5 ✻ 6 = ?
16. 2 ✻ 10 = ?
17. 3 ✻ 11 = ?
18. (2 ✻ 5) ✻ 4 = ? ✻ ?
    = ?
19. 2 ✻ (5 ✻ 4) = ? ✻ ?
    = ?
20. Describe the operation used.
21. Is this operation commutative?
22. Is this operation associative?

Find the operation. Copy and complete the numbered sentences.
If there is no whole-number answer, write an X in place of the __?__.

4 ✱ 3 = 15

8 ✱ 6 = 54

0 ✱ 5 = 5

4 ✱ 9 = 45

1. 6 ✱ 6 = __?__

2. 9 ✱ 7 = __?__

3. 8 ✱ 5 = __?__

4. 5 ✱ 8 = __?__

5. 10 ✱ 7 = __?__

6. 6 ✱ 11 = __?__

7. 12 ✱ 8 = __?__

8. (4 ✱ 6) ✱ 3 = __?__ ✱ __?__
= __?__

9. 4 ✱ (6 ✱ 3) = __?__ ✱ __?__
= __?__

10. Describe the operation used.

11. Is this operation commutative?

12. Is this operation associative?

9 ▲ 3 = 0

12 ▲ 3 = 1

3 ▲ 9 = __?__

10 ▲ 2 = 3

13. 15 ▲ 3 = __?__

14. 48 ▲ 6 = __?__

15. 10 ▲ 5 = __?__

16. 12 ▲ 6 = __?__

17. 50 ▲ 5 = __?__

18. 5 ▲ 50 = __?__

19. 54 ▲ 6 = __?__

20. (24 ▲ 6) ▲ 2 = __?__ ▲ __?__
= __?__

21. 24 ▲ (6 ▲ 2) = __?__ ▲ __?__
= __?__

22. Describe the operation used.

23. Is this operation commutative?

24. Is this operation associative?

WHOLE-NUMBER ALGORISMS

Find the sums.

	A	B	C	D
1.	49,683 +65,178	75,574 +77,563	68,982 +98,498	25,467 +79,823
2.	387,691 245,307 +742,896	599,683 487,026 +322,985	478,626 357,989 +204,357	613,756 909,838 +435,417
3.	308,766 26,925 735,358 +256,381	633,051 492 209,361 +492,004	298 65,836 735,682 +603,959	92,385 42 907,618 +802,577

Find the differences.

4.	536,827 −421,614	782,766 − 20,349	457,203 −215,167	684,379 −126,489
5.	276,199 − 87,357	630,189 −326,299	563,088 −247,769	480,013 −124,649
6.	400,000 −287,633	507,008 −209,379	670,010 −412,349	800,900 −438,965

Find the sums or differences.

	A	B	C	D
1.	$\begin{array}{r} 564{,}567 \\ +273{,}964 \\ \hline \end{array}$	$\begin{array}{r} 636{,}256 \\ +372{,}758 \\ \hline \end{array}$	$\begin{array}{r} 591{,}036 \\ -275{,}648 \\ \hline \end{array}$	$\begin{array}{r} 680{,}389 \\ -293{,}294 \\ \hline \end{array}$
2.	$\begin{array}{r} 434{,}967 \\ -186{,}878 \\ \hline \end{array}$	$\begin{array}{r} 675{,}374 \\ +454{,}859 \\ \hline \end{array}$	$\begin{array}{r} 871{,}472 \\ -442{,}369 \\ \hline \end{array}$	$\begin{array}{r} 769{,}568 \\ +153{,}625 \\ \hline \end{array}$
3.	$\begin{array}{r} 736{,}003 \\ -\ \ 29{,}347 \\ \hline \end{array}$	$\begin{array}{r} 975{,}457 \\ +386{,}887 \\ \hline \end{array}$	$\begin{array}{r} 603{,}010 \\ -597{,}282 \\ \hline \end{array}$	$\begin{array}{r} 723{,}809 \\ +876{,}198 \\ \hline \end{array}$

Copy the exercises, writing the correct digit in place of the □.

	A	B	C
4.	$\begin{array}{r} \square\ 2\ 4\ \square \\ +\ 4\ \square\ \square\ 3 \\ \hline 6\ 9\ 8\ 9 \end{array}$	$\begin{array}{r} \square\ \square\ \square\ \square \\ +\ 2\ 3\ 9\ 4 \\ \hline 8\ 2\ 7\ 8 \end{array}$	$\begin{array}{r} 6\ 4\ 2\ \square \\ +\ \square\ 3\ 9\ 7 \\ \hline 9\ \square\ \square\ 3 \end{array}$
5.	$\begin{array}{r} 3\ 6\ 5\ \square \\ +\ \square\ 8\ \square\ 4 \\ \hline 5\ \square\ 2\ 0 \end{array}$	$\begin{array}{r} 1\ \square\ \square\ 4 \\ +\ \square\ 2\ 8\ \square \\ \hline 7\ 1\ 6\ 2 \end{array}$	$\begin{array}{r} \square\ 5\ \square\ 8 \\ +\ 6\ \square\ 7\ 6 \\ \hline 9\ 2\ 3\ \square \end{array}$
6.	$\begin{array}{r} \square\ 2\ 8\ \square \\ +\ 4\ \square\ 4\ 3 \\ \hline 8\ 1\ \square\ 0 \end{array}$	$\begin{array}{r} 4\ 3\ 4\ 5 \\ +\ \square\ \square\ \square\ \square \\ \hline 9\ 2\ 1\ 0 \end{array}$	$\begin{array}{r} 6\ 8\ \square\ 9 \\ +\ 2\ \square\ 8\ 2 \\ \hline \square\ 8\ 3\ \square \end{array}$

Find the products.

1. 3 × 9 = ?
3 × 90 = ?
3 × 900 = ?
3 × 9000 = ?

2. 6 × 6 = ?
6 × 60 = ?
6 × 600 = ?
6 × 6000 = ?

3. 4 × 5 = ?
4 × 50 = ?
4 × 500 = ?
4 × 5000 = ?

4. 4 × 8 = ?
4 × 80 = ?
4 × 800 = ?
4 × 8000 = ?

5. 7 × 4 = ?
7 × 40 = ?
7 × 400 = ?
7 × 4000 = ?

6. 9 × 7 = ?
9 × 70 = ?
9 × 700 = ?
9 × 7000 = ?

7. 30 × 5 = ?
30 × 50 = ?
30 × 500 = ?
30 × 5000 = ?

8. 20 × 8 = ?
20 × 80 = ?
20 × 800 = ?
20 × 8000 = ?

9. 80 × 6 = ?
80 × 60 = ?
80 × 600 = ?
80 × 6000 = ?

10. 60 × 4 = ?
60 × 40 = ?
60 × 400 = ?
60 × 4000 = ?

11. 40 × 3 = ?
40 × 30 = ?
40 × 300 = ?
40 × 3000 = ?

12. 90 × 5 = ?
90 × 50 = ?
90 × 500 = ?
90 × 5000 = ?

13. $\begin{array}{r} 3000 \\ \times \quad 8 \\ \hline \end{array}$

14. $\begin{array}{r} 2000 \\ \times \quad 7 \\ \hline \end{array}$

15. $\begin{array}{r} 9000 \\ \times \quad 4 \\ \hline \end{array}$

16. $\begin{array}{r} 6000 \\ \times \quad 5 \\ \hline \end{array}$

17. $\begin{array}{r} 8000 \\ \times \quad 70 \\ \hline \end{array}$

18. $\begin{array}{r} 7000 \\ \times \quad 60 \\ \hline \end{array}$

19. $\begin{array}{r} 8000 \\ \times \quad 80 \\ \hline \end{array}$

20. $\begin{array}{r} 6000 \\ \times \quad 90 \\ \hline \end{array}$

$$\begin{aligned}4\times 2365 &= 4\times(2000+\underline{\ ?\ }+\underline{\ ?\ }+\underline{\ ?\ })\\ &= (4\times\underline{\ ?\ })+(4\times\underline{\ ?\ })+(4\times\underline{\ ?\ })+(4\times\underline{\ ?\ })\\ &= \underline{\ ?\ }+\underline{\ ?\ }+\underline{\ ?\ }+\underline{\ ?\ }\\ &= \underline{\ ?\ }\end{aligned}$$

$$\begin{array}{r} 2\,3\,6\,5\\ \times\quad\quad 4\\ \hline \boxed{7}\boxed{9}\boxed{0}\boxed{0}\end{array}$$

ind the products.

1. $\begin{array}{r} 4368\\ \times\quad 5\\ \hline 40\end{array}$

2. $\begin{array}{r} 2915\\ \times\quad 8\\ \hline \end{array}$

3. $\begin{array}{r} 4685\\ \times\quad 6\\ \hline \end{array}$

4. $\begin{array}{r} 3972\\ \times\quad 3\\ \hline \end{array}$

5. $\begin{array}{r} 1346\\ \times\quad 9\\ \hline \end{array}$

6. $\begin{array}{r} 1871\\ \times\quad 7\\ \hline \end{array}$

7. $\begin{array}{r} 4412\\ \times\quad 2\\ \hline \end{array}$

8. $\begin{array}{r} 3495\\ \times\quad 8\\ \hline \end{array}$

$$\begin{aligned}40\times 2365 &= (10\times 4)\times 2365\\ &= 10\times(\underline{\ ?\ }\times 2365)\\ &= 10\times\underline{\ ?\ }\\ &= \underline{\ ?\ }\end{aligned}$$

$$\begin{array}{r} 2\,3\,6\,5\\ \times\quad\quad 4\,0\\ \hline \square\square,\square\square\,0\end{array}$$

ind the products.

9. $\begin{array}{r} 1365\\ \times\quad 30\\ \hline \end{array}$

10. $\begin{array}{r} 4873\\ \times\quad 20\\ \hline \end{array}$

11. $\begin{array}{r} 6842\\ \times\quad 50\\ \hline \end{array}$

12. $\begin{array}{r} 9436\\ \times\quad 40\\ \hline \end{array}$

13. $\begin{array}{r} 2785\\ \times\quad 60\\ \hline \end{array}$

14. $\begin{array}{r} 4058\\ \times\quad 80\\ \hline \end{array}$

15. $\begin{array}{r} 3709\\ \times\quad 70\\ \hline \end{array}$

16. $\begin{array}{r} 4876\\ \times\quad 90\\ \hline \end{array}$

$$\begin{array}{r} 2645 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2645 \\ \times \quad 30 \\ \hline \end{array}$$

$$\begin{aligned} 39 \times 2645 &= (30 + 9) \times 2645 \\ &= (30 \times 2645) + (9 \times 2645) \\ &= \underline{\ ?\ } + \underline{\ ?\ } \\ &= \underline{\ ?\ } \end{aligned}$$

$$\begin{array}{r} 2\ 6\ 4\ 5 \\ \times \quad 3\ 9 \\ \hline \square\square\square\square\square \\ \square\square\square\square\square \\ \hline \square\square\square\square\square\square \end{array}$$

Find the products.

	A	B	C
1.	$\begin{array}{r} 5428 \\ \times \quad 25 \\ \hline \end{array}$	$\begin{array}{r} 7832 \\ \times \quad 16 \\ \hline \end{array}$	$\begin{array}{r} 6275 \\ \times \quad 34 \\ \hline \end{array}$
2.	$\begin{array}{r} 4362 \\ \times \quad 56 \\ \hline \end{array}$	$\begin{array}{r} 2761 \\ \times \quad 82 \\ \hline \end{array}$	$\begin{array}{r} 2798 \\ \times \quad 52 \\ \hline \end{array}$
3.	$\begin{array}{r} 2581 \\ \times \quad 48 \\ \hline \end{array}$	$\begin{array}{r} 2530 \\ \times \quad 65 \\ \hline \end{array}$	$\begin{array}{r} 5323 \\ \times \quad 77 \\ \hline \end{array}$
4.	$\begin{array}{r} 1562 \\ \times \quad 91 \\ \hline \end{array}$	$\begin{array}{r} 3248 \\ \times \quad 43 \\ \hline \end{array}$	$\begin{array}{r} 4997 \\ \times \quad 28 \\ \hline \end{array}$

Estimate the products by rounding the first factor to the nearest multiple of 10, and the second factor to the nearest multiple of 1000. Find the exact product. Then find the difference between your estimate and the exact product.

1.	Estimated Product	Exact Product	Difference
21 × 2045	?	?	?
49 × 1936	?	?	?
11 × 6989	?	?	?
30 × 4895	?	?	?
67 × 1205	?	?	?
58 × 3110	?	?	?
49 × 2107	?	?	?
72 × 3986	?	?	?
34 × 5660	?	?	?
65 × 3962	?	?	?

Copy and complete each equation.

2. 61 × 4280 = 200,000 + ___?___
3. 8264 × 19 = ___?___ + 125,683
4. 47 × 5006 = 250,000 − ___?___
5. 24 × 5148 = 127,200 − ___?___
6. 6824 × 33 = 220,000 + ___?___
7. 76 × 3764 = 300,000 − ___?___
8. 51 × 6364 = ___?___ + 24,000
9. 26 × 4875 = ___?___ + 26,750
10. 3462 × 37 = 150,000 − ___?___
11. 9580 × 62 = ___?___ + 285,977
12. 49 × 5008 = 500,000 − ___?___
13. 3796 × 59 = 25,985 + ___?___
14. 92 × 2080 = ___?___ + 92,470
15. 7573 × 86 = 700,000 − ___?___

Find the missing factors.

1. ? × 20 = 40
? × 20 = 400
? × 20 = 4000
? × 20 = 40,000

2. ? × 50 = 400
? × 50 = 4000
? × 50 = 40,000
? × 50 = 400,000

3. ? × 40 = 240
? × 40 = 2400
? × 40 = 24,000
? × 40 = 240,000

4. 30 × ? = 120
30 × ? = 1200
30 × ? = 12,000
30 × ? = 120,000

5. 70 × ? = 350
70 × ? = 3500
70 × ? = 35,000
70 × ? = 350,000

6. 60 × ? = 480
60 × ? = 4800
60 × ? = 48,000
60 × ? = 480,000

$$\begin{array}{r|r} 30\overline{)\,72780} & \\ -60000 & 2000 \\ \hline 12780 & \\ -12000 & 400 \\ \hline 780 & \\ -600 & 20 \\ \hline 180 & \\ -180 & 6 \\ \hline 0 & 2426 \end{array}$$

$$\begin{array}{r} 2000 \\ 30\overline{)\,72780} \\ -60000 \\ \hline 12780 \end{array}$$

$$\begin{array}{r} 2400 \\ 30\overline{)\,72780} \\ -60000 \\ \hline 12780 \\ -12000 \\ \hline 780 \end{array}$$

$$\begin{array}{r} 2420 \\ 30\overline{)\,72780} \\ -60000 \\ \hline 12780 \\ -12000 \\ \hline 780 \\ -600 \\ \hline 180 \end{array}$$

$$\begin{array}{r} 2426 \\ 30\overline{)\,72780} \\ -60000 \\ \hline 12780 \\ -12000 \\ \hline 780 \\ -600 \\ \hline 180 \\ -180 \\ \hline 0 \end{array}$$

Find the quotients.

7. $20\overline{)\,85120}$

8. $40\overline{)\,66080}$

9. $30\overline{)\,94470}$

$$\begin{array}{r|r}
24\,\overline{)\,56856} & \\
-48000 & 2000 \\ \hline
8856 & \\
-7200 & 300 \\ \hline
1656 & \\
-1440 & 60 \\ \hline
216 & \\
-216 & 9 \\ \hline
0 & 2369
\end{array}$$

$$\begin{array}{r}
2000 \\
24\,\overline{)\,56856} \\
-48000 \\ \hline
8856
\end{array}
\qquad
\begin{array}{r}
2300 \\
24\,\overline{)\,56856} \\
-48000 \\ \hline
8856 \\
-7200 \\ \hline
1656
\end{array}
\qquad
\begin{array}{r}
2360 \\
24\,\overline{)\,56856} \\
-48000 \\ \hline
8856 \\
-7200 \\ \hline
1656 \\
-1440 \\ \hline
216
\end{array}
\qquad
\begin{array}{r}
23690 \\
24\,\overline{)\,56856} \\
-48000 \\ \hline
8856 \\
-7200 \\ \hline
1656 \\
-1440 \\ \hline
216 \\
-216 \\ \hline
0
\end{array}$$

$$\begin{array}{r|r}
21\,\overline{)\,63882} & \\
-63000 & 3000 \\ \hline
882 & \\
-840 & 40 \\ \hline
42 & \\
-42 & 2 \\ \hline
0 & 3042
\end{array}$$

$$\begin{array}{r}
3000 \\
21\,\overline{)\,63882} \\
-63000 \\ \hline
882
\end{array}
\qquad
\begin{array}{r}
3040 \\
21\,\overline{)\,63882} \\
-63000 \\ \hline
882 \\
-840 \\ \hline
42
\end{array}
\qquad
\begin{array}{r}
3042 \\
21\,\overline{)\,63882} \\
-63000 \\ \hline
882 \\
-840 \\ \hline
42 \\
-42 \\ \hline
0
\end{array}$$

---

ind the quotients.

1. $32\,\overline{)\,18112}$
2. $55\,\overline{)\,21010}$
3. $34\,\overline{)\,41038}$
4. $56\,\overline{)\,67704}$
5. $43\,\overline{)\,74218}$
6. $39\,\overline{)\,31122}$
7. $44\,\overline{)\,89364}$
8. $37\,\overline{)\,75332}$
9. $51\,\overline{)\,64923}$
10. $61\,\overline{)\,90341}$
11. $29\,\overline{)\,58145}$
12. $72\,\overline{)\,73440}$
13. $46\,\overline{)\,98256}$
14. $26\,\overline{)\,17030}$
15. $52\,\overline{)\,26468}$
16. $64\,\overline{)\,13312}$

Solve the equations.

1. 27 × 272 ? = 7236

2. ? × 49 = 78,547

3. 15,480 ÷ 40 = ?

4. 93,312 ÷ 36 = ?

5. 17 × ? = 34,816

6. ? × 92 = 28,244

7. 84 × ? = 61,320

8. ? × 52 = 62,868

9. 16 × ? = 65,552

10. 77,425 ÷ 25 = ?

11. 19 × ? = 97,565

12. 24,650 ÷ 50 = ?

13. 66,264 ÷ 11 = ?

14. ? × 38 = 81,168

15. 35 × ? = 30,660

16. 33,000 ÷ 24 = ?

17. ? × 49 = 54,439

18. 25,340 ÷ 70 = ?

19. 23 × ? = 46,069

20. ? × 77 = 23,716

21. 81 × ? = 75,492

Copy the exercises, writing the correct digit in place of each □.

22. $$\begin{array}{r} \square\square\square \\ \times \quad 17 \\ \hline 10,268 \end{array}$$

23. $$\begin{array}{r} \square\square\square\square \\ \times \quad 26 \\ \hline 29,198 \end{array}$$

24. $$\begin{array}{r} \square\square\square\square \\ \times \quad 39 \\ \hline 40,053 \end{array}$$

25. $$\begin{array}{r} \square\square\square \\ \times \quad 84 \\ \hline 47,208 \end{array}$$

26. $$\begin{array}{r} \square\square\square \\ \times \quad 75 \\ \hline 29,625 \end{array}$$

27. $$\begin{array}{r} \square\square\square \\ \times \quad 54 \\ \hline 44,010 \end{array}$$

28. $$\begin{array}{r} \square\square\square \\ \times \quad 89 \\ \hline 42,364 \end{array}$$

29. $$\begin{array}{r} \square\square\square \\ \times \quad 91 \\ \hline 63,882 \end{array}$$

30. $$\begin{array}{r} 1233 \\ 22\overline{)\square\square\square\square\square} \end{array}$$

31. $$\begin{array}{r} 2036 \\ 15\overline{)\square\square\square\square\square} \end{array}$$

32. $$\begin{array}{r} 716 \\ 34\overline{)\square\square\square\square\square} \end{array}$$

33. $$\begin{array}{r} 1056 \\ 41\overline{)\square\square\square\square\square} \end{array}$$

$$\begin{array}{r|r|r}
23 & 47179 & \\
 & -46000 & 2000 \\
\hline
 & 1179 & \\
 & -1150 & 50 \\
\hline
 & 29 & \\
 & -23 & 1 \\
\hline
 & 6 & 2051
\end{array}$$

$$\begin{array}{r|r}
 & 2051 \\
\hline
23 & 47179 \\
 & -46000 \\
\hline
 & 1179 \\
 & -1150 \\
\hline
 & 29 \\
 & -23 \\
\hline
 & 6
\end{array}$$

Divide. Check your answer.

1. $18\overline{)56560}$
2. $12\overline{)73627}$
3. $21\overline{)89529}$
4. $29\overline{)65139}$
5. $24\overline{)98289}$
6. $21\overline{)72649}$
7. $32\overline{)46563}$
8. $11\overline{)78135}$

Estimate each quotient by rounding the dividend to the nearest multiple of 1000 and the divisor to the nearest multiple of 10. Compare your estimate with the exact quotient.

9.	Estimated Quotient	Exact Quotient	Difference
10,395 ÷ 21	500	495	5
3952 ÷ 19	?	?	?
5940 ÷ 11	?	?	?
7028 ÷ 28	?	?	?
14,742 ÷ 39	?	?	?
6750 ÷ 27	?	?	?
7810 ÷ 11	?	?	?
3750 ÷ 15	?	?	?

10.	Estimated Quotient	Exact Quotient	Difference
5440 ÷ 34	?	?	?
2400 ÷ 12	?	?	?
8379 ÷ 21	?	?	?
2925 ÷ 15	?	?	?
12,896 ÷ 32	?	?	?
32,074 ÷ 79	?	?	?
8680 ÷ 28	?	?	?
16,458 ÷ 39	?	?	?

For each story problem, write an equation and solve it.
Then write a sentence to answer the question.

1. Mr. Long rents summer cottages. He built 19 cottages for $6200 each. How much did Mr. Long spend to build the cottages?
2. Mr. Long spent $212 for a refrigerator for each cottage and $157 for a stove for each cottage. How much did Mr. Long spend for stoves and refrigerators for the 19 cottages?
3. One hundred seventy-one pairs of curtains were needed for all the cottages. Each cottage had the same number of windows. How many pairs of curtains were needed for each cottage?
4. Mr. Long spent $260.30 for 38 porch chairs. What was the cost of each porch chair?
5. Mr. Long rents 10 of the cottages for $125 a week, and 9 of the cottages for $150 a week. When all the cottages are rented, how much rent does Mr. Long receive in one week?

Copy and complete the equations.

6. 5616 ÷ 18 = 500 − ___?___
7. 10,738 ÷ 26 = ___?___ + 410
8. 4408 ÷ 38 = 58 × ___?___
9. 5500 ÷ 55 = ___?___ × 10
10. 21,844 ÷ 43 = 600 − ___?___
11. 10,045 ÷ 41 = 5 × ___?___
12. 9657 ÷ 29 + ___?___ + 33
13. 9860 ÷ 68 = ___?___ ÷ 5
14. 40,014 ÷ 19 = 3 × ___?___
15. 46,690 ÷ 23 = ___?___ + 15
16. 43,750 ÷ 14 = 5000 − ___?___
17. 27,456 ÷ 26 = ___?___ + 56
18. 24,769 ÷ 31 = 600 + ___?___
19. 75,555 ÷ 15 = 10,000 − ___?___
20. 44,772 ÷ 42 = 60 + ___?___
21. 33,654 ÷ 79 = ___?___ × 71

Copy and complete the table.

	+	−	×	÷
4606 △ 98	?	?	?	?
5289 △ 43	?	?	?	?
672 △ 56	?	?	?	?
968 △ 88	?	?	?	?
5625 △ 75	?	?	?	?
2688 △ 32	?	?	?	?
3876 △ 68	?	?	?	?

Copy each statement. Write T before each true statement.
Write F before each false statement.

. 42,320 ÷ 20 = 2010 + 106

. 25,830 ÷ 35 = 370 × 2

. 72,800 ÷ 80 = 1000 − 90

. 32,513 ÷ 61 = 106 × 5

. 13,143 ÷ 39 = 300 − 14

. 31,900 ÷ 44 = 20,000 + 11,900

. 64,080 ÷ 16 = 10,000 − 5995

. 40,262 ÷ 82 = 500 − 11

9. 54,808 ÷ 13 = 3000 + 216

10. 12,152 ÷ 56 = 100 + 110 + 7

11. 52,802 ÷ 17 = 1035 × 3

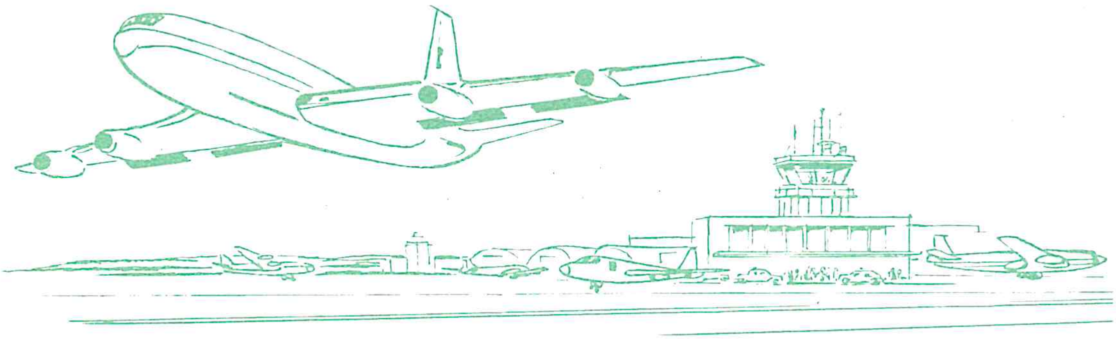
12. 2304 ÷ 48 = 6 × 8

13. 1152 ÷ 24 = 100 − 52

14. 12,285 ÷ 91 = 27 × 5

15. 80,003 ÷ 77 = 1020 + 19

16. 35,574 ÷ 66 = 107 × 5



For each story problem, write an equation and solve it. Then write a sentence to answer the question.

1. Ruth read in her social studies book that an airline carried 13,680 passengers during one 24-hour period. What was the average number of passengers carried by this airline each hour?

2. The airplanes used 16,810 gallons less than 300,000 gallons of fuel. How many gallons of fuel did the airplanes use?

3. During the 24-hour period, New York City handled 51,817 pounds of baggage, Cleveland handled 18,936 pounds, and Chicago handled 24,788 pounds. What was the total weight of the baggage handled by these three cities?

4. The airline made 538 flights during the 24-hour period. If the same number of flights were made each day, how many flights would be made in 2 weeks?

5. San Francisco took care of 9568 passengers. Los Angeles took care of 7699 passengers. How many passengers were served in these two cities? How many more passengers were served in San Francisco?

What numbers make each sentence true?

1. $2098 + 372 = n$	2470	2570	2370	2407
2. $5000 - 681 = a$	4219	4309	4319	4329
3. $68 \times 55 > b$	2890	3810	3750	3640
4. $7930 \div 26 < c$	300	400	500	600
5. $4324 \div 92 = k$	57	47	58	48
6. $517 \times 82 > g$	41,394	43,394	42,294	42,393
7. $6273 + 8599 > y$	23,872	16,728	41,872	21,872
8. $10{,}000 - 3858 = j$	6042	6142	6152	6052
9. $329 \times 71 < m$	24,359	23,360	23,459	23,460
0. $23{,}359 \div 71 = r$	319	309	339	329

Match.

1. $120 + 26$	A 23×47	18. 16×19	A $15{,}168 \div 64$
2. $500 + 90 + 22$	B 808×36	19. 79×3	B $2484 \div 3$
3. $2000 - 919$	C $4672 \div 32$	20. $10{,}000 - 5328$	C $5000 - 4696$
4. 7272×4	D $50{,}796 \div 83$	21. $28{,}980 \div 35$	D $7744 \div 88$
5. $1872 \div 13$	E $187 + 187$	22. $20 + 48 + 20$	E 64×73
6. 24×32	F 12×12	23. $4837 + 4919$	F 508×42
7. $20{,}570 \div 55$	G 48×16	24. $18{,}759 + 2577$	G 542×18

REVIEW

Copy and complete each table.

1.

+	4324	7590	1010
4681	9005	?	?
?	?	10,000	?
6648	?	?	?
?	?	?	5140

2.

+	6309	?	8772
1048	?	8076	?
?	9833	?	?
?	?	?	12,465
2947	?	?	?

Find the products.

3. $\frac{1}{2} \times 13 =$? = ?

4. $\frac{2}{8} \times 7 =$? = ?

5. $\frac{3}{8} \times 7 =$? = ?

6. $\frac{4}{7} \times 7 =$? = ?

7. $\frac{2}{2} \times \frac{5}{8} =$? = ?

8. $\frac{3}{3} \times \frac{6}{9} =$? = ?

9. $\frac{4}{4} \times \frac{7}{10} =$? = ?

10. $\frac{5}{5} \times \frac{8}{11} =$? = ?

11. $6 \times 3\frac{1}{8} =$?

12. $4 \times 8\frac{1}{2} =$?

13. $2 \times 7\frac{1}{6} =$?

14. $5 \times 1\frac{1}{5} =$?

Copy and complete each table.

1.

×	17	?	38
13	?	585	?
?	442	?	?
?	?	2745	?
52	?	?	?

2.

×	?	98	205
33	1782	?	?
?	?	1568	?
49	?	?	?
?	4644	?	?

Copy each sentence, writing >, <, or = in place of the ○.

3. 963 × 97 ○ 100,000 − 6511

4. 48,659 + 12,501 ○ 782 × 68

5. 2552 ÷ 4 ○ 18,502 ÷ 29

6. 79 × 879 ○ 69,441 ÷ 79

7. 75,218 − 10,883 ○ 974 × 64

Copy each sentence, writing +, −, ×, or ÷ in place of the ▽.

8. 879 × 78 = 92,341 ▽ 23,779

9. 646 ▽ 38 = 17 ▽ 1

10. 12 ▽ 12 = (6 × 12) ▽ (6 × 12)

11. 42 ▽ 21 = 42 ▽ 2

12. 25 ▽ 5 = 5 ▽ 25

Find the missing factors.

3. $29\overline{)1160}$

4. $11\overline{)11,022}$

15. $63\overline{)12,663}$

16. $56\overline{)16,856}$

Find the quotients and remainders.

17. $27\overline{)7623}$

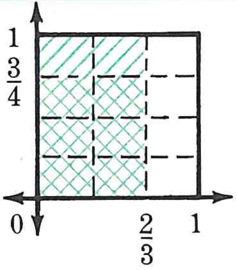
18. $47\overline{)16,696}$

19. $36\overline{)52,168}$

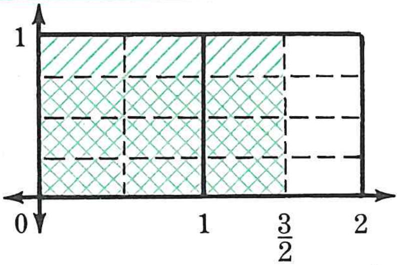
20. $68\overline{)90,103}$

FRACTIONAL NUMBERS: COMPUTATION

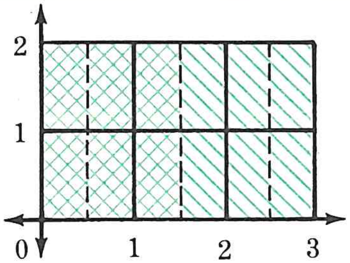
Copy and solve each equation.



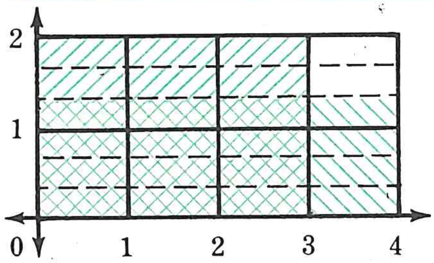
1. $\frac{3}{4} \times \frac{2}{3} = \frac{3 \times 2}{4 \times 3} = \underline{\frac{6}{12}}$



2. $\frac{3}{4} \times \frac{3}{2} = \frac{3 \times 3}{4 \times 2} = \underline{\frac{9}{8}}$ $1\frac{1}{8}$



3. $2 \times \frac{3}{2} = \frac{2 \times 3}{2} = \underline{\frac{6}{2}}$



4. $\frac{4}{3} \times 3 = \frac{4 \times 3}{3} = \underline{\frac{12}{3}}$

5. $\frac{4}{5} \times \frac{1}{3} = \frac{4 \times 1}{5 \times 3} = \underline{\frac{4}{15}}$

6. $\frac{1}{2} \times \frac{3}{7} = \frac{3}{\underline{\quad}} = \underline{?}$

7. $\frac{5}{8} \times \frac{1}{4} = \underline{?} = \underline{?}$

8. $\frac{7}{6} \times \frac{1}{5} = \underline{?} = \underline{?}$

9. $\frac{2}{7} \times \frac{9}{2} = \underline{?} = \underline{?}$

10. $\frac{8}{5} \times \frac{5}{8} = \underline{?} = \underline{?}$

11. $\frac{5}{4} \times \frac{4}{5} = \underline{?} = \underline{?}$

12. $2 \times \frac{3}{4} = \frac{? \times ?}{4} = \underline{?}$

13. $\frac{1}{6} \times 5 = \frac{? \times ?}{6} = \underline{?}$

14. $4 \times \frac{2}{3} = \underline{?} = \underline{?}$

15. $\frac{7}{8} \times 8 = \underline{?} = \underline{?}$

16. $\frac{3}{5} \times 5 = \underline{?} = \underline{?}$

17. $9 \times \frac{2}{3} = \underline{?} = \underline{?}$

18. $6 \times \frac{5}{6} = \underline{?} = \underline{?}$

Copy and complete the equations.

1. $\frac{1}{2} \times \frac{1}{4} = \frac{1}{6}$

2. $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$

3. $\frac{3}{2} \times 6 = \frac{18}{6}$

4. $\frac{3}{2} \times \frac{1}{2} =$? 1 $\frac{1}{4}$

5. $\frac{7}{3} \times \frac{3}{7} = 1$

6. $\frac{8}{5} \times \frac{4}{3} = 2\frac{2}{3}$

7. Arrange the numerals to show the order of the numbers.

	GREATEST
$\frac{1}{3} \times \frac{3}{8}$	$\frac{3}{24}$
$\frac{3}{2} \times \frac{4}{6}$	1
$\frac{1}{6} \times \frac{6}{4}$	$\frac{6}{24}$
$\frac{2}{3} \times \frac{1}{2}$	$\frac{2}{6}$
$\frac{5}{6} \times \frac{1}{2}$	$\frac{5}{12}$
$\frac{1}{4} \times \frac{2}{3}$	$\frac{2}{12}$
	LEAST

When possible, show each multiplication as repeated addition. Find the products.

8. $5 \times 4 = 4 + 4 + 4 + 4 + 4 =$?

9. $4 \times 5 =$? + ? + ? + ? = ?

0. $3 \times \frac{1}{2} =$?

1. $2 \times \frac{3}{8} =$?

2. $5 \times \frac{5}{6} =$?

13. $2 \times \frac{4}{9} =$?

14. $\frac{1}{5} \times 3 =$?

15. $3 \times \frac{1}{5} =$?

16. $4 \times \frac{6}{7} =$?

17. $\frac{9}{3} \times \frac{1}{2} =$?

18. $\frac{1}{3} \times \frac{7}{8} =$?

Copy and complete.

$$\frac{1}{2} \times \overset{1}{\frac{2}{2}} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4} \qquad \frac{3}{6} = \frac{3 \times 1}{3 \times 2} = \overset{1}{\frac{3}{3}} \times \frac{1}{2} = \frac{1}{2}$$

1. $\frac{3}{5} \times \frac{1}{2} = \frac{3 \times ?}{5 \times ?} = \frac{4}{10}$

2. $\frac{1}{6} \times \frac{?}{?} = \frac{? \times ?}{? \times ?} = \frac{?}{18}$

3. $\frac{2}{3} \times \frac{?}{?} = \frac{? \times ?}{? \times ?} = \frac{?}{15}$

4. $\frac{6}{8} = \frac{2 \times ?}{2 \times ?} = \frac{2}{2} \times \frac{?}{?} = \frac{?}{?}$

5. $\frac{4}{10} = \frac{? \times ?}{? \times 5} = \frac{?}{?} \times \frac{?}{5} = \frac{?}{5}$

6. $\frac{18}{12} = \frac{? \times ?}{? \times ?} = \frac{?}{?} \times \frac{?}{?} = \frac{?}{4}$

7. $\frac{1}{2} = \frac{?}{4}$

8. $\frac{4}{5} = \frac{?}{10}$

9. $\frac{7}{9} = \frac{?}{18}$

10. $\frac{2}{3} = \frac{?}{12}$

11. $\frac{3}{8} = \frac{?}{16}$

12. $\frac{5}{6} = \frac{?}{18}$

13. $\frac{5}{15} = \frac{?}{3}$

14. $\frac{8}{12} = \frac{?}{3}$

15. $\frac{12}{16} = \frac{?}{4}$

16. $\frac{10}{20} = \frac{?}{10}$

17. $\frac{10}{20} = \frac{?}{4}$

18. $\frac{10}{20} = \frac{?}{2}$

$$\frac{6}{4} = \frac{3}{2}$$

We say that the fraction $\frac{3}{2}$ is in *lower terms* than the fraction $\frac{6}{4}$ because the denominator 2 is less than the denominator 4.

$$\frac{16}{32} = \frac{8}{16} = \frac{4}{8} = \frac{2}{4} = \frac{1}{2}$$

19. Which of the above fractions is in lowest terms?

Rename in lowest terms.

20. $\frac{4}{16} = \underline{\ ?\ }$

21. $\frac{9}{27} = \underline{\ ?\ }$

22. $\frac{14}{22} = \underline{\ ?\ }$

23. $\frac{18}{36} = \underline{\ ?\ }$

24. $\frac{30}{60} = \underline{\ ?\ }$

25. $\frac{50}{100} = \underline{\ ?\ }$

26. $\frac{15}{60} = \underline{\ ?\ }$

27. $\frac{75}{100} = \underline{\ ?\ }$

Rename with a mixed fraction in lowest terms.

$\frac{9}{6} = \frac{3}{2} = \overset{1}{\frac{2}{2}} + \frac{1}{2} = 1\frac{1}{2}$

$\frac{9}{6} = \overset{1}{\frac{6}{6}} + \frac{3}{6} = 1\frac{3}{6} = 1\frac{1}{2}$

1. $\frac{14}{6} = \frac{?}{3} = \frac{6}{3} + \frac{?}{?} = \underline{\ ?\ }$

2. $\frac{14}{4} = \frac{?}{2} = \frac{?}{2} + \frac{?}{?} = \underline{\ ?\ }$

3. $\frac{16}{12} = \frac{?}{3} = \frac{?}{?} + \frac{?}{?} = \underline{\ ?\ }$

4. $\frac{18}{12} = \frac{?}{4} = \frac{?}{?} + \frac{?}{?} = \underline{\ ?\ }$

5. $\frac{14}{8} = \frac{?}{4} = \underline{\ ?\ }$

6. $\frac{12}{9} = \frac{?}{?} = \underline{\ ?\ }$

7. $\frac{25}{10} = \frac{?}{?} = \underline{\ ?\ }$

8. $\frac{35}{21} = \frac{?}{?} = \underline{\ ?\ }$

8

9. $\frac{20}{8} = \frac{16}{8} + \frac{?}{8} = 2\frac{?}{8} = 2\frac{?}{?}$

10. $\frac{15}{6} = \frac{?}{6} + \frac{3}{6} = \underline{\ ?\ }\frac{?}{?} = \underline{\ ?\ }$

11. $\frac{16}{10} = \frac{?}{?} + \frac{?}{?} = \underline{\ ?\ }\frac{?}{?} = \underline{\ ?\ }$

12. $\frac{21}{14} = \frac{?}{?} + \frac{?}{?} = \underline{\ ?\ }\frac{?}{?} = \underline{\ ?\ }$

13. $\frac{15}{10} = \underline{\ ?\ }\frac{?}{10} = \underline{\ ?\ }$

14. $\frac{8}{6} = \underline{\ ?\ }\frac{?}{6} = \underline{\ ?\ }$

15. $\frac{26}{12} = \underline{\ ?\ }\frac{?}{?} = \underline{\ ?\ }$

16. $\frac{18}{14} = \underline{\ ?\ }\frac{?}{?} = \underline{\ ?\ }$

Copy the sentences, writing >, <, or = in place of the ○.
Renaming may help you.

$\frac{21}{9}$ ○ $\frac{14}{6}$

$\frac{21}{9} = 2\frac{1}{3}$ ○ $\frac{14}{6} = 2\frac{1}{3}$

17. $\frac{9}{6}$ ○ $\frac{10}{4}$

18. $\frac{21}{12}$ ○ $\frac{14}{8}$

19. $\frac{12}{10}$ ○ $\frac{18}{15}$

20. $\frac{12}{9}$ ○ $\frac{20}{15}$

Find the products. Make sure the answers are written in lowest terms.

$$\frac{6}{5} \times \frac{2}{3} = \frac{6 \times 2}{5 \times 3} = \frac{12}{15} = \frac{4}{5}.$$

1. $\frac{1}{2} \times \frac{1}{3} = \underline{\frac{1}{6}}$

2. $\frac{2}{3} \times \frac{1}{4} = \underline{\frac{2}{12}}$

3. $\frac{5}{3} \times \frac{3}{4} = \underline{1\frac{3}{4}}$

4. $\frac{8}{5} \times \frac{1}{2} = \underline{\frac{8}{10}}$

5. $\frac{1}{4} \times 4 = \underline{\frac{4}{4}}$

6. $\frac{3}{2} \times 10 = \underline{11\frac{1}{3}}$

7. $\frac{8}{3} \times \frac{3}{4} = \underline{1}$

8. $\frac{4}{5} \times \frac{3}{4} = \underline{\frac{12}{20}}$

9. $\frac{7}{8} \times \frac{2}{5} = \underline{\frac{14}{40}}$

10. $\frac{3}{2} \times \frac{2}{3} = \underline{1}$

11. $\frac{7}{3} \times \frac{2}{5} = \underline{\frac{14}{15}}$

12. $\frac{2}{3} \times 6 = \underline{6\frac{2}{3}}$

13. $\frac{9}{5} \times 4 = \underline{5\frac{1}{5}}$

14. $\frac{5}{3} \times \frac{4}{2} = \underline{2}$

15. $\frac{5}{4} \times \frac{2}{5} = \underline{\frac{10}{20}}$

$$\begin{aligned} 2 \times 3\tfrac{1}{2} &= 2 \times (3 + \tfrac{1}{2}) \\ &= (2 \times 3) + (2 \times \tfrac{1}{2}) \\ &= 6 + 1 \\ &= 7 \end{aligned}$$

$$2 \times 3\tfrac{1}{2} = 2 \times (3 + \tfrac{1}{2})$$

$$\begin{array}{r} 3 + \frac{1}{2} \\ \times \quad 2 \\ \hline 6 + 1 = 7 \end{array}$$

16. $2 \times 6\frac{1}{2} = \underline{\ ?\ }$

17. $4 \times 3\frac{1}{2} = \underline{\ ?\ }$

18. $3 \times 4\frac{1}{6} = \underline{\ ?\ }$

19. $7 \times 3\frac{2}{7} = \underline{\ ?\ }$

Solve each story problem.

The 12 girls in the school service club made tray favors for the hospital. Three-fourths of the girls made paper cups for candy. One-fourth of the girls tied ribbons on the cups. How many girls made cups? How many girls tied ribbons?

Each cup was filled with $\frac{1}{16}$ lb. of lemon drops. How many pounds of candy did the girls use for each dozen cups they filled?

Each of five girls put flower stickers on $4\frac{1}{2}$ dozen napkins. How many napkins did they decorate? How many dozen napkins?

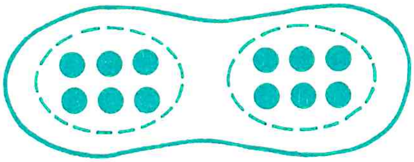
Each of 7 girls used $9\frac{2}{5}$ yards of shelf paper for tray mats. How many yards of paper did they use for mats?

The girls packed the candy cups in 5 boxes. There were $2\frac{5}{6}$ dozen cups in each box. How many cups did they take to the hospital? How many dozen cups?

The cost of materials for making each tray favor was $\frac{1}{20}$ of a dollar. What part of a dollar did ten favors cost? How many dollars did one hundred favors cost?

Nancy's little brother, Tim, asked her, "Why is 6 called $\frac{1}{2}$ of a dozen?"

"Because there are 12 things in a dozen, and $\frac{6}{12}$ equals $\frac{1}{2}$," Nancy replied.



$\frac{6}{12} = \frac{1}{2}$

Copy and complete each sentence.

1. 30 minutes is half ? of an hour because

$\frac{30}{60} = \frac{1}{2}$?.

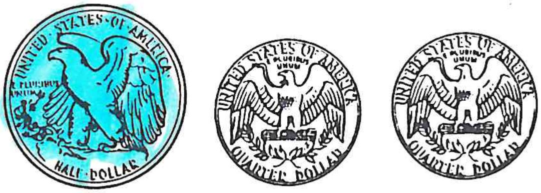
2. 15 minutes is $\frac{1}{4}$? of an hour because

$\frac{15}{60} = \frac{1}{4}$?.

3. 45 minutes is $\frac{3}{4}$? of an hour because

$\frac{45}{60} = \frac{3}{4}$?.

4. Tim played baseball for one-fourth of an hour, hide-and-seek for one-fourth of an hour, and tag for one-fourth of an hour. How long did Tim play these three games?



5. 50¢ is $\frac{1}{2}$? of a dollar because

$\frac{50}{100} = \frac{1}{2}$?.

6. 25¢ is $\frac{1}{4}$? of a dollar because

$\frac{25}{100} = \frac{1}{4}$?.

7. 75¢ is $\frac{3}{4}$? of a dollar because

$\frac{75}{100} = \frac{3}{4}$.

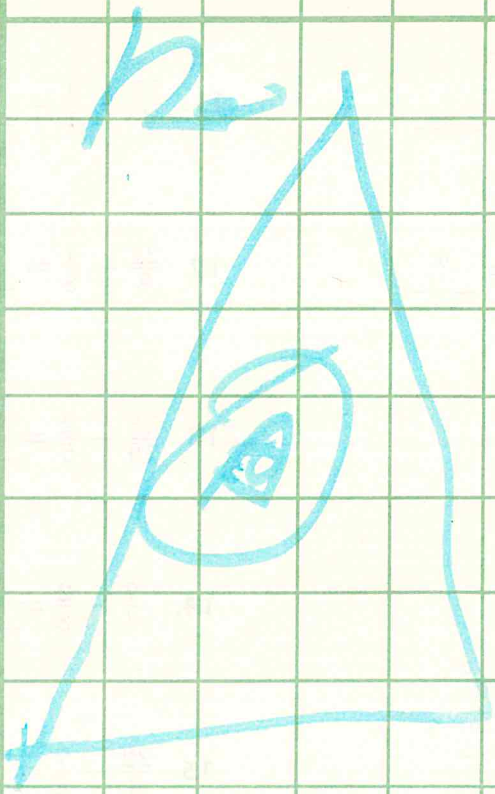
8. Nancy's father gave her one-half of a dollar to buy a ticket to the movies and one-fourth of a dollar to buy popcorn. How much money did Nancy's father give her?

opy and complete the division table by writing fractions to name each quotient.

DIVISORS

DIVIDENDS

÷	1	2	3	4	5	6	7	8
0								
1								
2								
3								
4								
5								
6								
7								
8								



ow far could this table be extended?

se a red crayon to color each box containing a name for 1.

se a blue crayon to color each box containing a name for $\frac{1}{2}$.

se a yellow crayon to color each box containing a name for 2.

se a green crayon to color each box containing a name for 0.

t an X on each fraction that also names a whole number.

Solve each equation. Write the answer in lowest terms.

1. $\frac{1}{2} + \frac{1}{2} = \underline{\ ?\ } = \underline{\ ?\ }$

2. $\frac{7}{6} + \frac{5}{6} = \underline{\ ?\ } = \underline{\ ?\ }$

3. $\frac{11}{8} + \frac{3}{8} = \underline{\ ?\ } = \underline{\ ?\ }$

4. $\frac{1}{3} + \frac{1}{6} = \underline{\ ?\ }$

5. $\frac{1}{2} + \frac{1}{6} = \underline{\ ?\ }$

6. $\frac{2}{3} + \frac{7}{12} = \underline{\ ?\ }$

7. $\frac{1}{4} + \frac{5}{6} = \underline{\ ?\ }$

8. $\frac{3}{4} + \frac{4}{10} = \underline{\ ?\ }$

9. $\left(\frac{3}{4} + \frac{5}{6}\right) + \frac{1}{12} = \underline{\ ?\ }$

10. $\frac{7}{8} - \frac{3}{8} = \underline{\ ?\ } = \underline{\ ?\ }$

11. $\frac{15}{4} - \frac{9}{4} = \underline{\ ?\ } = \underline{\ ?\ }$

12. $\frac{21}{8} - \frac{1}{8} = \underline{\ ?\ } = \underline{\ ?\ }$

13. $\frac{16}{10} - \frac{2}{5} = \underline{\ ?\ }$

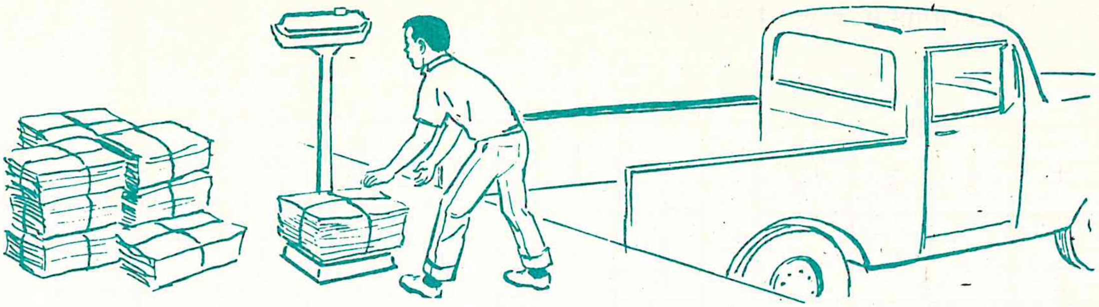
14. $\frac{7}{4} - \frac{2}{8} = \underline{\ ?\ }$

15. $\frac{22}{8} - \frac{7}{4} = \underline{\ ?\ }$

16. $\frac{4}{2} - \frac{8}{5} = \underline{\ ?\ }$

17. $\frac{4}{6} - \frac{1}{4} = \underline{\ ?\ }$

18. $\frac{12}{3} - \frac{3}{2} = \underline{\ ?\ }$



lve each story problem.

1. At the school paper sale David weighed bundles of newspapers before they were loaded on the truck. Jan's papers weighed $6\frac{1}{4}$ pounds. Betty's papers weighed $5\frac{1}{8}$ pounds. David told the girls that together their bundles weighed $\underline{\quad ? \quad}$ pounds.

2. Bud brought $15\frac{15}{16}$ pounds of paper and $26\frac{1}{2}$ pounds of magazines. By how many pounds did this increase the weight on the truck?

3. David spent $3\frac{3}{4}$ hours weighing paper. He worked $1\frac{3}{4}$ hours before school and $\frac{3}{4}$ of an hour at noon. How many hours did he work after school?

4. Boys and girls in the third grade brought $437\frac{3}{8}$ pounds of paper. The girls brought $198\frac{13}{16}$ pounds. How many pounds did the boys bring?

5. The fourth grade had a party because they brought the greatest weight of paper. Bud paid $1\frac{1}{4}$ dollars for pineapple juice, $1\frac{1}{2}$ dollars for orange juice, and $\frac{5}{10}$ of a dollar for ginger ale. How many dollars did he spend?

6. Betty and Jan mixed $17\frac{3}{4}$ cups of pineapple juice with $20\frac{2}{3}$ cups of orange juice. How many cups of ginger ale will they need to make $48\frac{5}{12}$ cups of punch?

Copy and complete each table. Write your answers as mixed fractions in lowest terms.

1.

$+$	$\frac{1}{3}$	$\frac{5}{6}$	$7\frac{1}{8}$
$\frac{1}{2}$	?	?	?
$\frac{7}{3}$	?	?	?
$2\frac{1}{4}$	?	?	?

2.

$-$	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{7}{12}$
$\frac{5}{6}$	?	?	?
$\frac{25}{12}$	?	?	?
$7\frac{2}{3}$	?	?	?

3.

$\times$	$\frac{2}{3}$	$\frac{8}{3}$	10
$\frac{1}{5}$	?	?	?
$\frac{1}{2}$	?	?	?
$\frac{3}{4}$	?	?	?

Copy and solve each equation. Write your answer in lowest terms.

4. $1\frac{7}{2} + \frac{9}{2} = n$

5. $\frac{3}{8} \times 12 = r$

6. $2\frac{1}{3} + a = 5\frac{5}{6}$

7. $3\frac{6}{8} - 1\frac{1}{2} = g$

8. $k + 1\frac{1}{4} = 3\frac{3}{8}$

9. $8 \times \frac{3}{4} = t$

10. $\frac{5}{7} \times 16 = m$

11. $b = 5\frac{7}{10} - 1$

12. $4\frac{1}{4} + \frac{11}{4} = d$

Copy each sentence, writing $+$, $-$, or $\times$ in place of the $\triangle$. Renaming may help you.

13. $\frac{9}{12} \triangle \frac{3}{6} = 1\frac{1}{4}$

14. $\frac{10}{2} \triangle \frac{4}{8} = 2\frac{1}{2}$

15. $\frac{3}{4} \triangle \frac{11}{12} = 1\frac{2}{3}$

16. $\frac{4}{5} \triangle \frac{3}{10} = \frac{1}{2}$

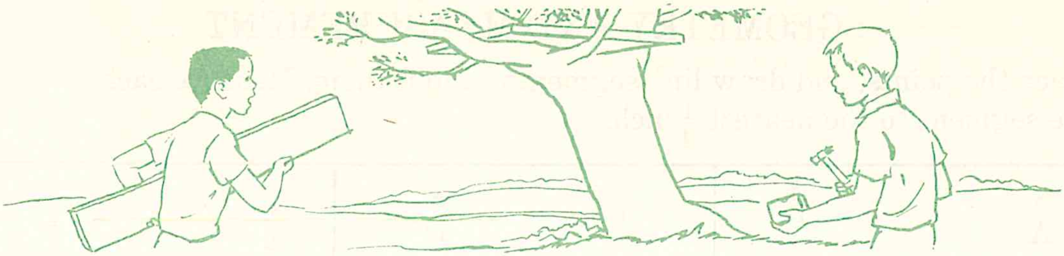
17. $\frac{7}{3} \triangle \frac{5}{2} = 5\frac{5}{6}$

18. $\frac{6}{8} \triangle \frac{1}{2} = \frac{1}{4}$

19. $\frac{6}{16} \triangle \frac{3}{8} = \frac{3}{4}$

20. $\frac{7}{2} \triangle \frac{8}{4} = 7$

21. $\frac{9}{4} \triangle \frac{1}{3} = 1$



olve each story problem.

1. Paul and Fred built a tree house in the woods. They used four boards, each $4\frac{1}{3}$ feet long, for the frame of the floor. The perimeter of the frame is _?_ feet.

2. To make the floor, they nailed five boards, each $\frac{3}{4}$ foot wide, onto the frame. The floor was _?_ feet wide.

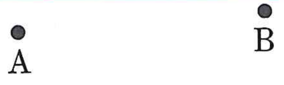
3. The boys hung a sheet from a higher branch. The sheet hung down $6\frac{3}{8}$ feet. The floor of the tree house was $7\frac{1}{4}$ feet from the limb. They lowered the sheet _?_ feet so it would touch the floor.

4. Paul sent Fred a message by lowering a rope from the floor of the house. The rope was $3\frac{7}{12}$ feet long. Fred could just touch the message by reaching up $4\frac{5}{6}$ feet. The floor of the tree house was _?_ feet above the ground.

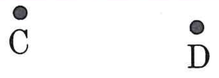
5. The first day, Fred guarded the house $\frac{3}{4}$ hour each of the 3 times Paul went home to eat. Paul guarded the house $\frac{1}{4}$ hour while Fred ate breakfast, $\frac{1}{2}$ hour at noon, and $\frac{3}{4}$ hour at dinner time. Fred guarded for _?_ hours. Paul guarded for _?_ hours.

6. The boys took 1 gallon of lemonade to the tree house. They drank all but 3 cups of it. Paul and Fred drank _?_ cups of lemonade.

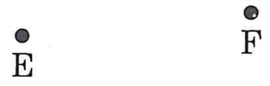
Trace the points, and draw line segments to join them. Measure each line segment to the nearest $\frac{1}{4}$ inch.



1. How long is AB?

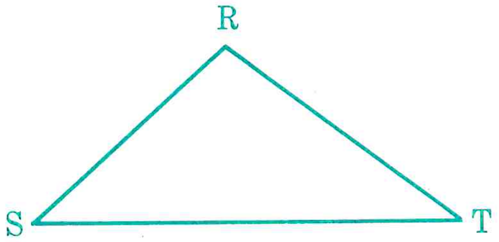


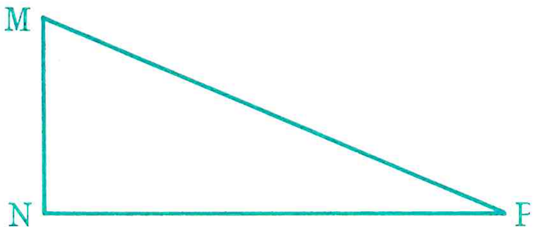
2. How long is CD?



3. How long is EF?

Measure the sides of the triangles below to the nearest $\frac{1}{8}$ inch.





4. Figure RST is a ___?___.

5. How long is RS?

6. How long is ST?

7. How long is TR?

8. The sum of the lengths of the sides of triangle RST is ___?___ inches.

9. Figure MNP is a ___?___.

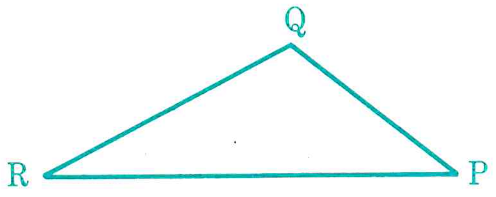
10. How long is MN?

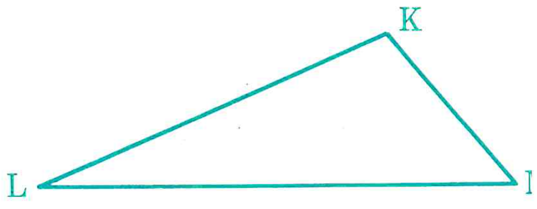
11. How long is NP?

12. How long is PM?

13. The sum of the lengths of th sides of triangle MNP is ___?
inches.

Every triangle has three sides. The sum of the lengths of the three sides of a triangle is called the *perimeter* of the triangle. Measure the perimeters of these triangles to the nearest $\frac{1}{8}$ inch.

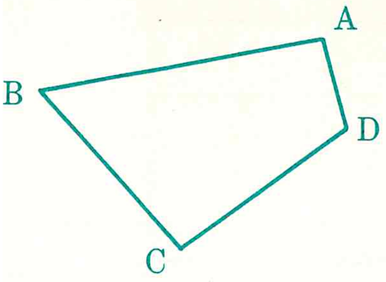


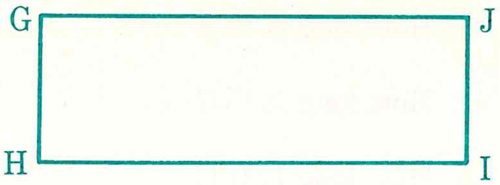


14. What is the perimeter of triangle PQR?

15. What is the perimeter of triangl KLM?

easure the line segments in the following figures to the nearest $\frac{1}{8}$ inch.





. Figure ABCD is a __?__.

. How long is AB?

. How long is BC?

. How long is CD?

. How long is DA?

. The sum of the lengths of AB, BC, CD, and DA is __?__ inches.

. What is the perimeter of quadrilateral ABCD?

8. Figure GHIJ is a __?__.

9. How long is GH?

10. How long is HI?

11. How long is IJ?

12. How long is JG?

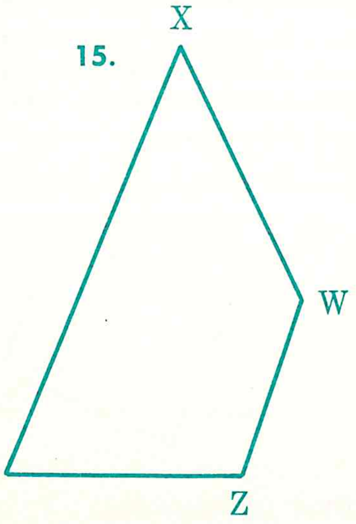
13. The sum of the lengths of GH, HI, IJ, and JG is __?__ inches.

14. What is the perimeter of rectangle GHIJ?

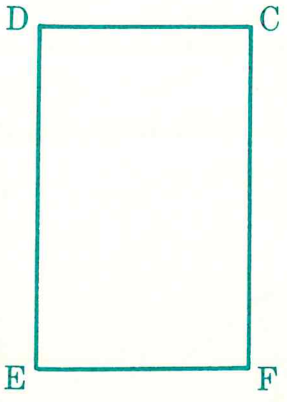
---

easure the perimeters of the quadrilaterals below to the nearest $\frac{1}{8}$ inch.

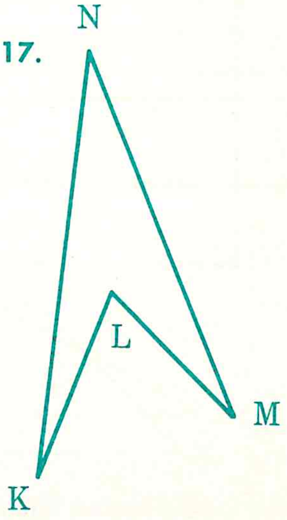
15.



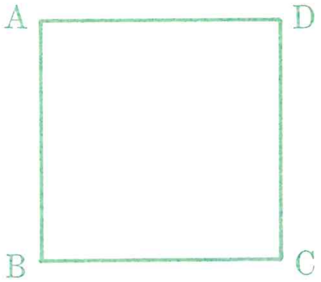
16.



17.



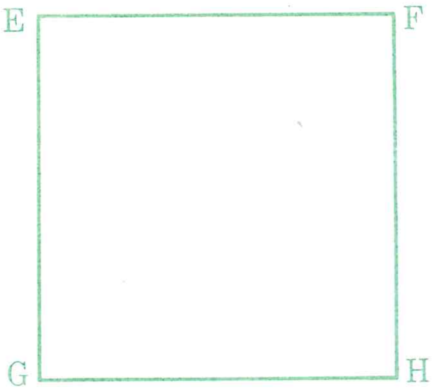
Measure the following line segments to the nearest $\frac{1}{8}$ inch.

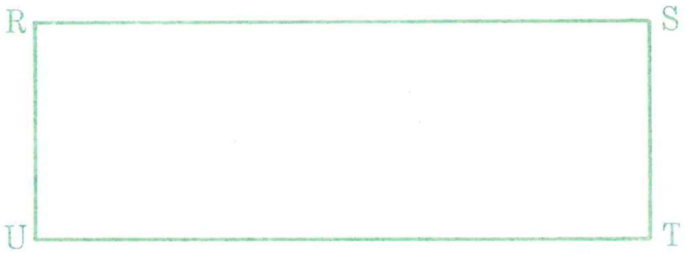


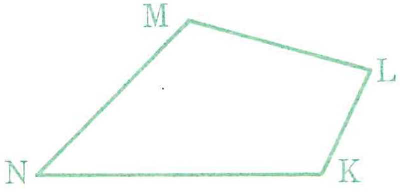
1. How long is AB?
2. How long is BC?
3. How long is CD?
4. How long is DA?
5. What is the perimeter of quadrilateral ABCD?
6. Is quadrilateral ABCD a rectangle?
7. What is true about lengths of AB, BC, CD, and DA?
8. A rectangle with all four sides the same length is called a *square*. Does a square have right angles? How many?

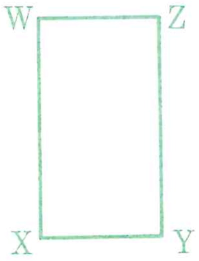
Two names for this figure are quadrilateral ABCD and rectangle ABCD.

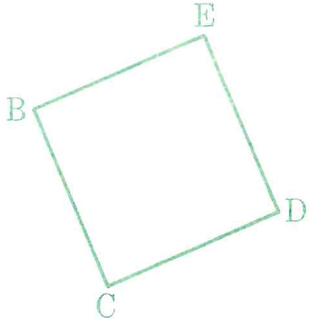
9. Another name for this figure is ___?___ ABCD.





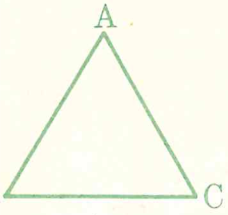




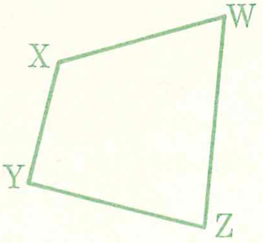


10. Name the squares pictured above, and give their perimeters.

How many sides and how many angles does each of these figures have?



2.



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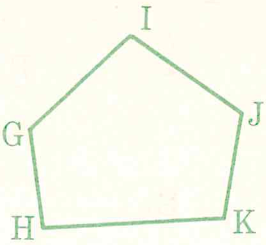

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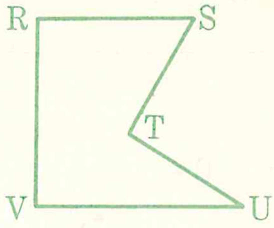

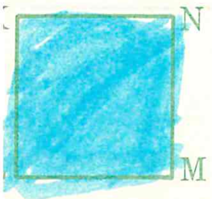

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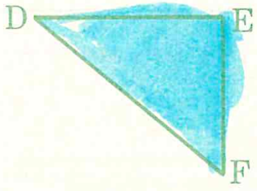

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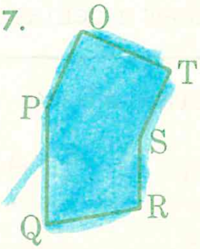

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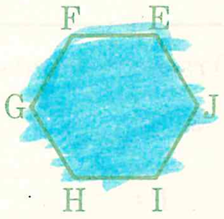


9. The figures above are *polygons*. In what way are these figures alike?

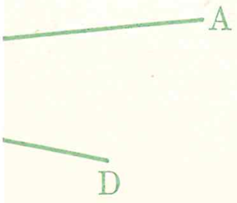
10. What is another name for polygon ABC?

11. What is another name for polygon XYZW?

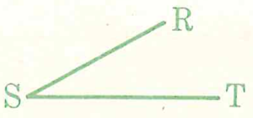
12. What are three other names for polygon KLMN?

Trace each figure below, and draw as few line segments as possible make a polygon. Then name the polygon formed.

3.



14.



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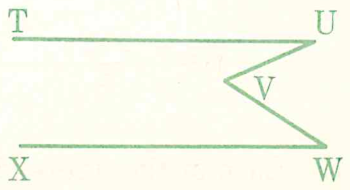
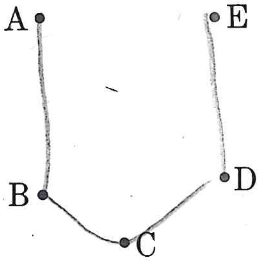
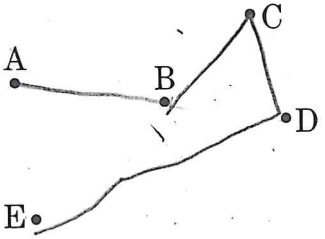


Trace the points and draw AB, BC, CD, DE, and EA.

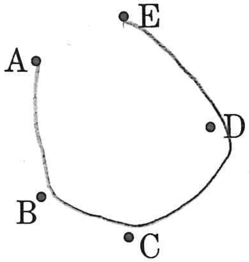
1.



2.



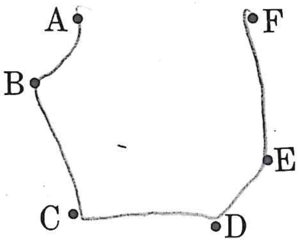
3.



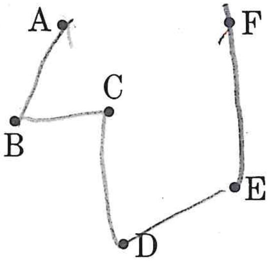
4. Each of the figures is a *pentagon*. How many sides and how many angles does a pentagon have?

Trace the points and draw AB, BC, CD, DE, EF, and FA.

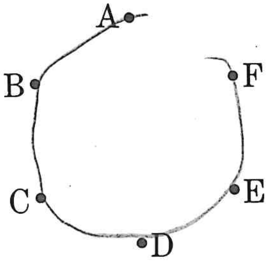
5.



6.



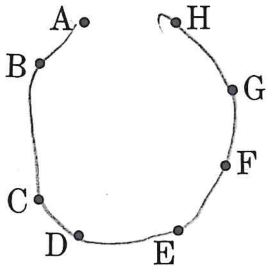
7.



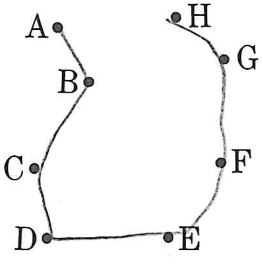
8. Each of the figures is a *hexagon*. How many sides and how many angles does a hexagon have?

Trace the points and draw AB, BC, CD, DE, EF, FG, GH, and HA.

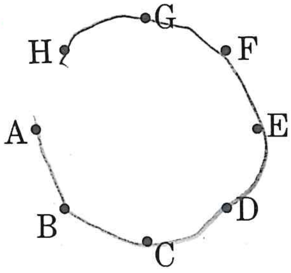
9.



10.



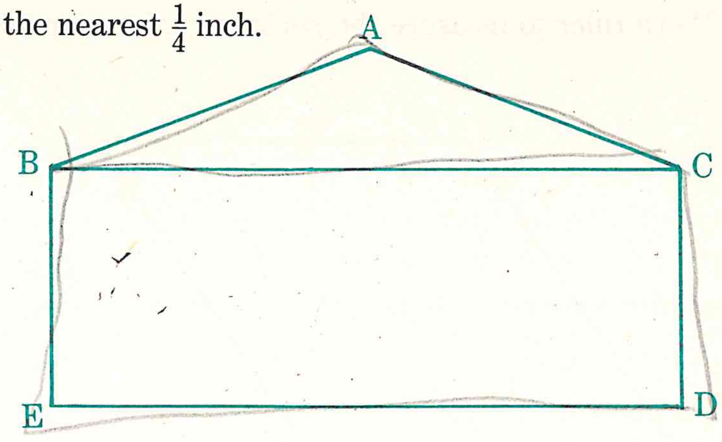
11.



12. Each of the figures is an *octagon*. How many sides and how many angles does an octagon have?

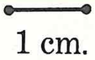
Measure each line segment to the nearest $\frac{1}{4}$ inch.

. How long is AB?
2. How long is BC?
3. How long is CA?
4. How long is BE?
5. How long is ED?
6. How long is DC?
7. What is the perimeter of triangle ABC?

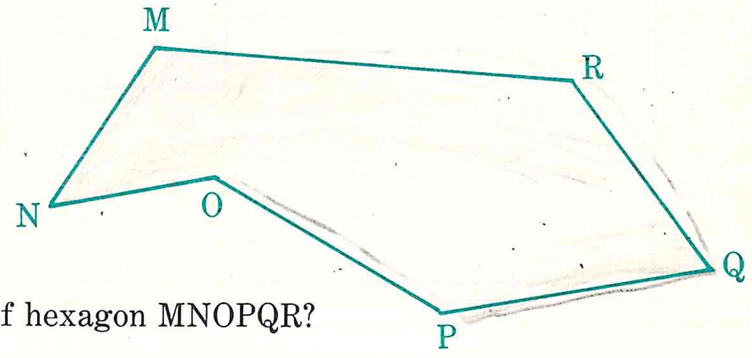


8. What is the perimeter of rectangle BCDE?
9. What is the perimeter of polygon DCABE?

Ieasure the line segments to the nearest $\frac{1}{2}$ centimeter.



0. How long is MN?
1. How long is NO?
2. How long is OP?
3. How long is PQ?
4. How long is QR?
5. How long is RM?
6. What is the perimeter of hexagon MNOPQR?



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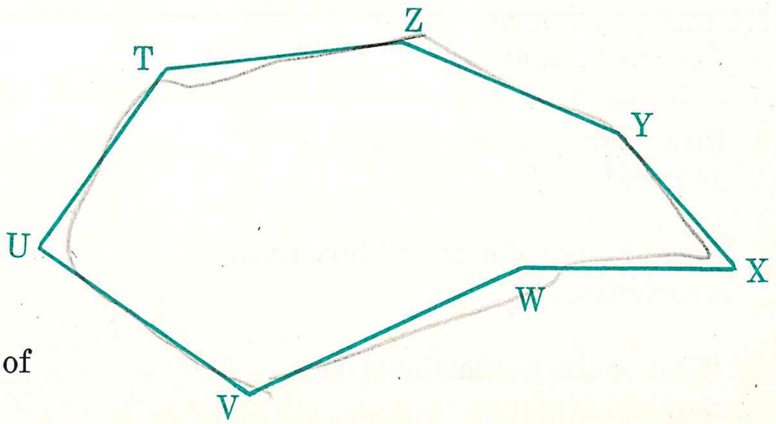
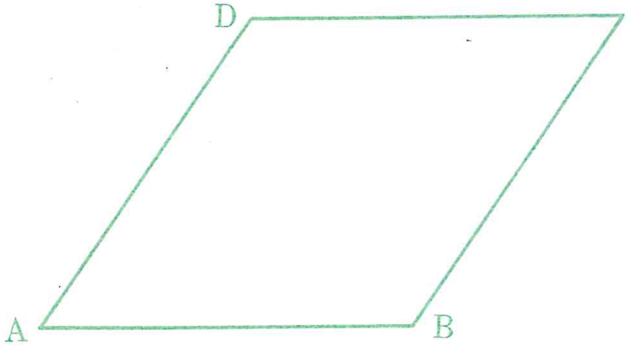
7. How long is TU?
8. How long is UV?
9. How long is VW?
0. How long is WX?
1. How long is XY?
2. How long is YZ?
3. How long is ZT?
4. What is the perimeter of polygon TUVWXYZ?

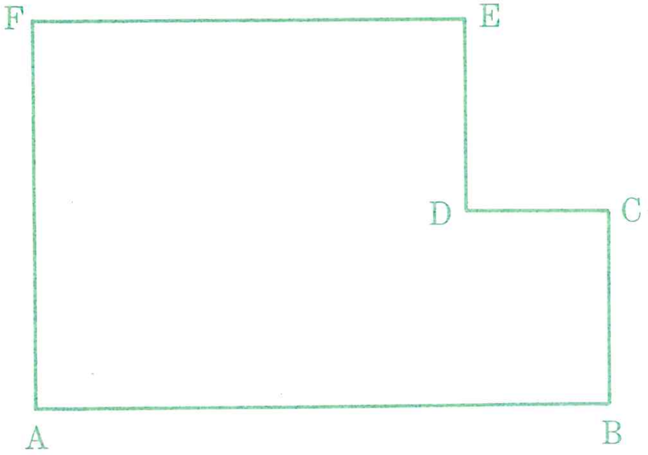


Use a ruler to measure the perimeter of each polygon to the nearest inch.

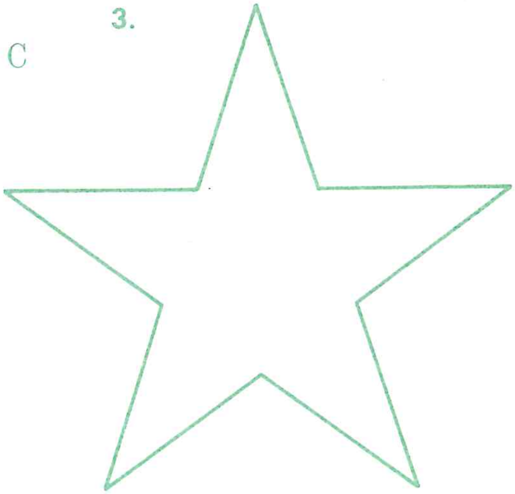
1.



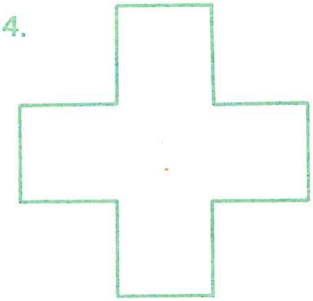
2.



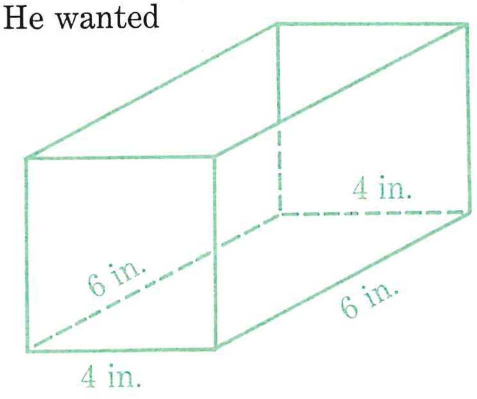
3.



4.



Joe made a cardboard model of a chalkbox. He wanted to tape the bottom edges of the box.

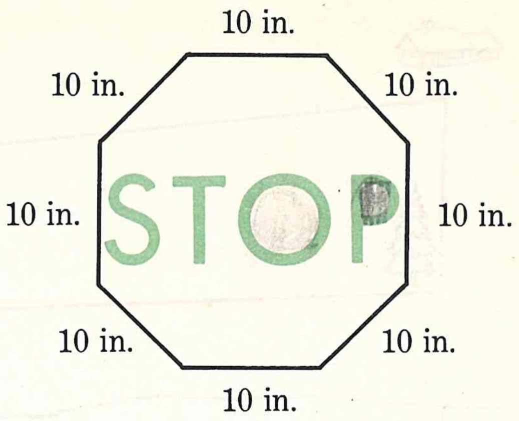


5. How many inches of tape would he need?

6. Does the bottom of the box form a rectangle?

7. What is the perimeter of this rectangle?

1. The police department of Midville is painting a thin black border around the edge of each STOP sign. They must paint _?_ inches of border on each sign.

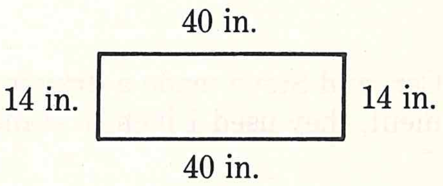


The STOP sign represents a polygon called an *octagon*.

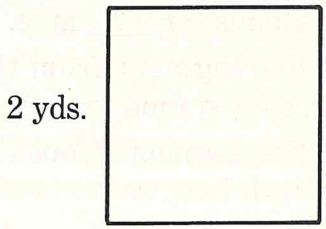
2. What is the meaning of octagon?

3. What is the perimeter of this octagon?

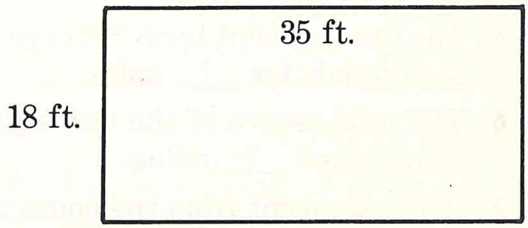
4. Joan wished to buy some lace edging to trim a scarf. She must find the _?_ of the scarf to know how much lace to buy. How many inches of lace does she need?



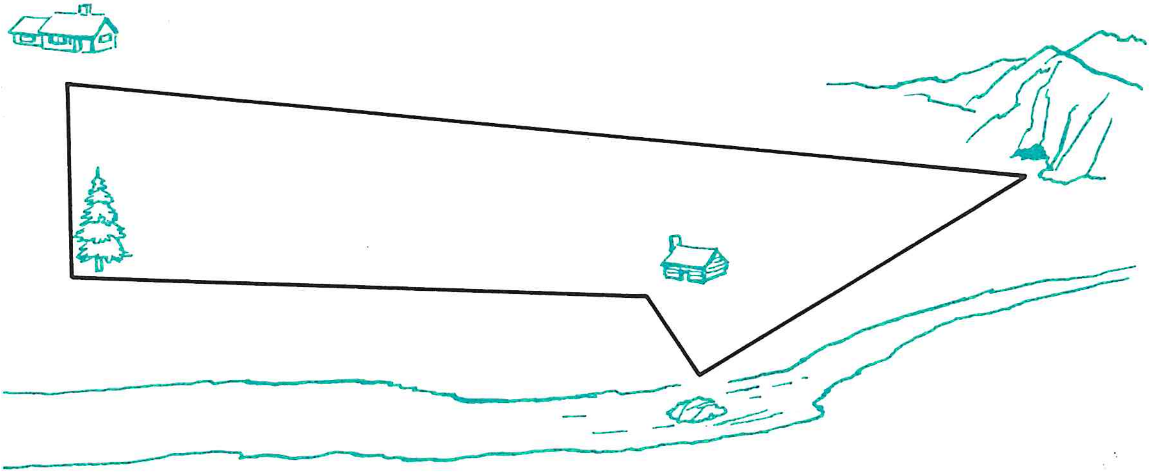
5. Allen has a garden in the shape of a square. One side is 2 yards long. How many yards of fencing does he need to enclose his garden?



6. The rectangular swimming pool at Greenville High School is 35 feet long and 18 feet wide. What is the perimeter of the pool?



7. A quadrilateral has a perimeter of 60 inches. One side is 15 inches long; a second side is 18 inches long; a third side is 19 inches long. How long is the fourth side?



Carl and Steve made a drawing of their hike. To draw each line segment, they used 1 inch to stand for 1 mile.

1. The line segment from their house to the big tree is __?__ inch long, so it stands for __?__ mile.
2. The line segment from the big tree to the cabin is __?__ inches long, so it stands for __?__ miles.
3. The line segment from the cabin to the big rock in the river is __?__ inch long, so it stands for __?__ mile.
4. The line segment from the rock to the cave is __?__ inches long, so it stands for __?__ miles.
5. The line segment from the cave to their home is __?__ inches long, so it stands for __?__ miles.
6. The total length of the line segments is __?__ inches, so Carl and Steve hiked __?__ miles.
7. A line segment from the house to the cabin would stand for __?__ miles.
8. A line segment from the cabin to the cave would stand for __?__ miles.
9. A line segment from the cave to the tree would stand for __?__ miles.
10. A line segment from the tree to the rock would stand for __?__ miles.
11. A line segment from the rock to the house would stand for __?__ miles.

Draw each line segment if possible.

1. Use 1 inch to stand for 1 foot. Draw a line segment to represent 5 feet.

2. Use 1 inch to stand for 1 foot. Draw a line segment to represent 2 yards.

3. Use 1 centimeter to stand for 1 foot. Draw a line segment to represent 16 feet.

4. Use 1 centimeter to stand for 1 foot. Draw a line segment to represent 5 yards.

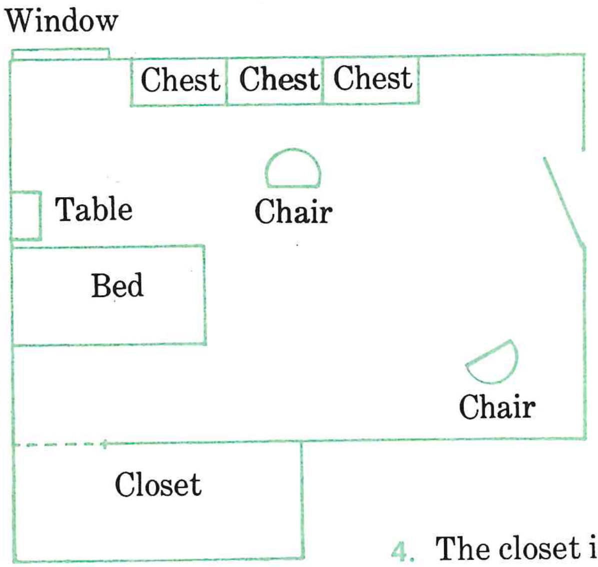
5. Use 1 centimeter to stand for 1 mile. Draw a line segment to represent 15 miles.

6. Use 1 inch to stand for 1 inch. Draw a line segment to represent $3\frac{1}{2}$ inches.

7. Use 1 mile to stand for 1 inch. Draw a line segment to represent $5\frac{1}{2}$ inches.

Jse 1 centimeter to stand for 1 yard. Copy and complete the table.

1 cm. ↓ _?_ yd.	$3\frac{1}{2}$ cm. ↓ _?_ yd.	8 cm. ↓ _?_ yd.	9 cm. ↓ _?_ ft.	15 cm. ↓ _?_ ft.	1 cm. ↓ _?_ in.	10 cm. ↓ _?_ in.
2 cm. ↓ _?_ in.	6 cm. ↓ _?_ ft.	12 cm. ↓ _?_ in.	20 cm. ↓ _?_ ft.	3 cm. ↓ _?_ in.	10 cm. ↓ _?_ yds.	36 cm. ↓ _?_ in.

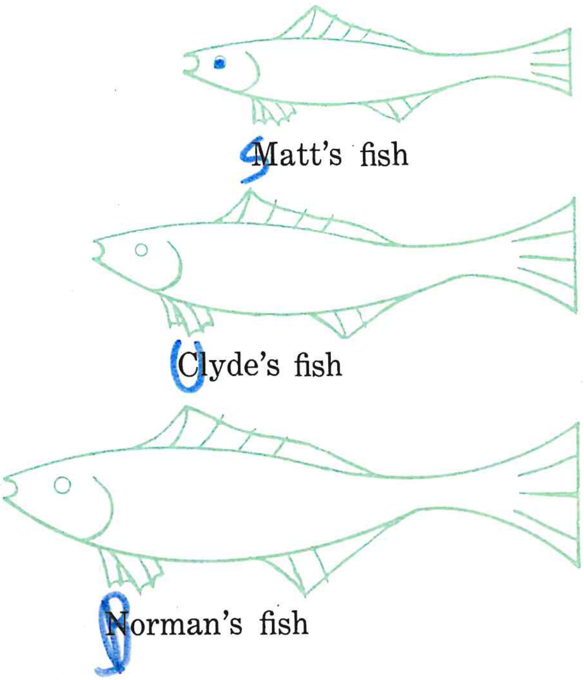


Mary made a drawing of her room. She used 1 inch to stand for 2 yards.

1. The wall behind the chests is ___?___ inches long, so it stands for ___?___ yards.
2. Near the door, the room is ___?___ inches wide, so it stands for ___?___ yards.
3. Her bed is really ___?___ yards long and ___?___ yards wide.
4. The closet is really ___?___ yards long and ___?___ yards wide.
5. How long are the three chests together?
6. How far is the window from the bed?
7. How far is the closet door from the bed?

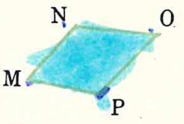
Fred made a drawing of the fish caught by three boys.

8. If 1 inch stands for 2 inches, then how long was Norman's fish? Clyde's fish? Matt's fish?
9. If 1 inch stands for 3 inches, then how long was Norman's fish? Clyde's fish? Matt's fish?
10. If 1 inch stands for 5 inches, then how long was Norman's fish? Clyde's fish? Matt's fish?



Name the figures below as many different ways as possible.

1.



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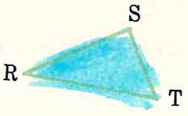

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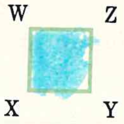

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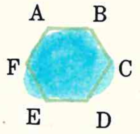
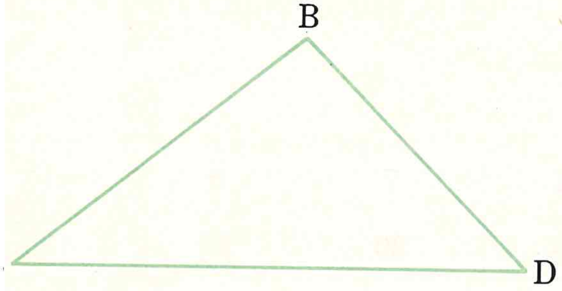
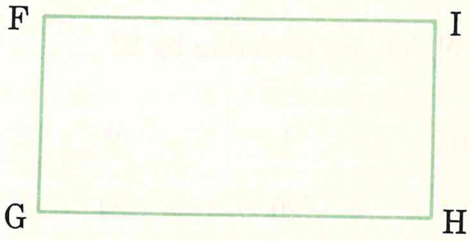


Measure each line segment to the nearest $\frac{1}{2}$ inch.

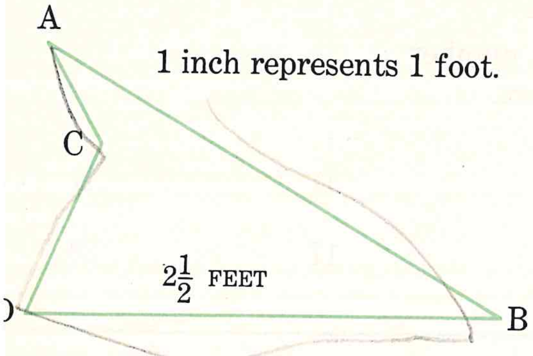




What is the perimeter of triangle BCD?

6. What is the perimeter of rectangle FGHI?

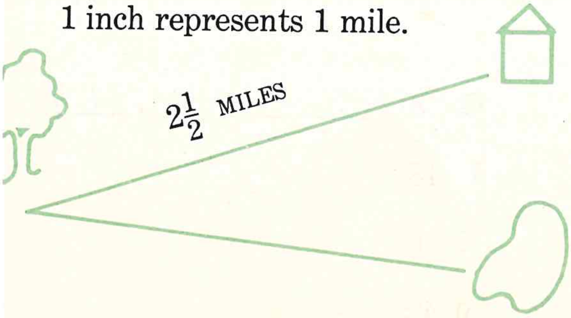
1 inch represents 1 foot.



7. What does CD represent?

8. What does AC represent?

1 inch represents 1 mile.



9. How far is the tree from the pond?

FACTORS AND EXPONENTS

$22 \div 11 = 22$

22 is *divisible* by 11. It is also divisible by ___?___ .

1. Which of the following numbers are divisible by 6?

2. Which are divisible by 3?

3. Which are divisible by 2?

0	1	2 3 x 5	6	7	9	15
18	20	24	28	30	32	36
42	48	50	51	60	72	75

In as many ways as you can, rename each number as the product of two whole-number factors.

A	B	C	D	E
3	6	11	17	28

List the set of factors of each number.

F 5 {___?___, ___?___}

G 8 {___?___, ___?___, ___?___, ___?___}

H 12

I 18

J 24

K 30

L 36

M 42

Copy the numbers, and list the set of whole-number factors for each.

Number	*Set of Factors*	*Number*	*Set of Factors*
1	?	22	?
2	?	23	?
3	?	25	?
4	?	26	?
6	?	27	?
7	?	29	?
9	?	31	?
11	?	33	?
13	?	34	?
15	?	35	?
16	?	37	?

Use the table you have just completed to answer the questions.

1. What numbers have exactly one whole-number factor?
2. What numbers have exactly two whole-number factors?
3. What numbers have 1 for a whole-number factor?
4. Is every number a whole-number factor of itself?
5. What numbers have exactly three whole-number factors?
6. What numbers have a whole-number factor (other than the number itself) greater than $\frac{1}{2}$ the number?
7. How many even numbers have exactly two whole-number factors?
8. All even numbers have whole-number factors of 1 and ? .
9. Is it possible to name all the whole-number factors of 0?

1. Which of these numbers have exactly two whole-number factors?

0 1 2 3 4 5 6 7 8 9 10 13 14 15 17

Any number that has exactly two whole-number factors is called a *prime* number.

2. Is 4 a prime number? Why?
3. Is 5 a prime number? Why?
4. Is 7 a prime number? Why?
5. Is 9 a prime number? Why?

Two whole-number factors of 11 are 11 and 1.

6. Is 11 divisible by 2? By 3?
7. Is 11 divisible by any other whole number?
8. Can 11 have whole-number factors other than 11 and 1?
9. Is 11 a prime number?

Copy and complete the table.

10.

Number	Two Whole-number Factors	Other Whole-number Factors	Prime Number?
8	1, 8	2, 4	No
13	1, 13	?	?
19	?	?	?
21	?	?	?
55	?	?	?
29	?	?	?
61	?	?	?
96	?	?	?

11. List the set of the first 10 prime numbers.

Copy and complete each equation.

1. $6 = 2 \times \underline{?}$
2. $8 = 2 \times 2 \times \underline{?}$
3. $20 = \underline{?} \times 2 \times 2$
4. $10 = \underline{?} \times 2$
5. $12 = 2 \times \underline{?} \times 3$
6. $27 = 3 \times \underline{?} \times 3$
7. $14 = 2 \times \underline{?}$
8. $18 = \underline{?} \times 2 \times 3$
9. $30 = 3 \times \underline{?} \times \underline{?}$

Rename each number as the product of factors that are prime.

0. $28 = 4 \times 7$
$= \underline{?} \times \underline{?} \times 7$

1. $45 = 5 \times 9$
$= 5 \times \underline{?} \times \underline{?}$

2. $52 = 4 \times 13$
$= \underline{?} \times \underline{?} \times 13$

3. $42 = 6 \times 7$
$= \underline{?} \times \underline{?} \times 7$

4. $75 = 15 \times 3$
$= \underline{?} \times \underline{?} \times 3$

5. $66 = 6 \times 11$
$= \underline{?} \times \underline{?} \times 11$

6. $44 = 4 \times 11$
$= \underline{?} \times \underline{?} \times 11$

17. $68 = 4 \times 17$
$= \underline{?} \times \underline{?} \times 17$

18. $98 = 2 \times 49$
$= 2 \times \underline{?} \times \underline{?}$

19. $36 = 3 \times 12$
$= 3 \times \underline{?} \times 4$
$= 3 \times \underline{?} \times \underline{?} \times \underline{?}$

20. $36 = 2 \times 18$
$= 2 \times \underline{?} \times 9$
$= 2 \times \underline{?} \times \underline{?} \times \underline{?}$

21. $36 = 4 \times 9$
$= \underline{?} \times 2 \times 9$
$= \underline{?} \times \underline{?} \times \underline{?} \times \underline{?}$

22. $48 = \underline{?}$
23. $60 = \underline{?}$
24. $49 = \underline{?}$
25. $54 = \underline{?}$
26. $64 = \underline{?}$
27. $72 = \underline{?}$
28. $84 = \underline{?}$
29. $90 = \underline{?}$

Rename as the product of prime factors. Watch for patterns.

0. $4 = \underline{?}$
$8 = \underline{?}$
$16 = \underline{?}$
$32 = \underline{?}$
$64 = \underline{?}$
$128 = \underline{?}$

31. $25 = \underline{?}$
$125 = \underline{?}$
$625 = \underline{?}$
$3125 = \underline{?}$

32. $9 = \underline{?}$
$27 = \underline{?}$
$18 = \underline{?}$
$243 = \underline{?}$
$729 = \underline{?}$
$2187 = \underline{?}$

33. $49 = \underline{?}$
$343 = \underline{?}$
$2401 = \underline{?}$
$16{,}807 = \underline{?}$

$2+2+2+2=4\times2$ $2\times2\times2\times2=2^4$

Copy and complete each equation.

1. $3+3+3+3=4\times\underline{\ ?\ }$

2. $3\times3\times3\times3=3^{\underline{?}}$

3. $8+8+8+8=\underline{\ ?\ }\times\underline{\ ?\ }$

4. $8\times8\times8\times8=\underline{\ ?\ }^{\underline{?}}$

5. $10+10+10=\underline{\ ?\ }\times\underline{\ ?\ }$

6. $10\times10\times10=\underline{\ ?\ }^{\underline{?}}$

Copy and complete the equations. Use exponents.

7. $3\times3=\underline{3^2}$

8. $3\times3\times3=\underline{9\ ?}$

9. $3\times3\times3\times3=\underline{12\ ?}$

10. $3\times3\times3\times3\times3=\underline{15\ ?}$

11. $3\times3\times3\times3\times3\times3=\underline{18\ ?}$

12. $3\times3\times3\times3\times3\times3\times3=\underline{21\ ?}$

13. $3\times3\times3\times3\times3\times3\times3\times3=\underline{24\ ?}$

14. $3\times3\times3\times3\times3\times3\times3\times3\times3=\underline{27\ ?}$

15. $10\times10=\underline{100\ ?}$

16. $9\times9=\underline{81\ ?}$

17. $10\times10\times10=\underline{3\ ?\ 0}\ 0$

18. $7\times7\times7=\underline{343\ ?}$

19. $5\times5\times5\times5=\underline{\ ?\ }$

20. $2\times2\times2\times2\times2=\underline{\ ?\ }$

21. $8\times8\times8\times8\times8=\underline{\ ?\ }$

22. $7\times7\times7\times7\times7\times7=\underline{\ ?\ }$

Rename, using exponents.

23. $2\times2\times3\times3=\underline{\ ?\ }\times\underline{\ ?\ }$

24. $6\times6\times9\times9=\underline{\ ?\ }\times\underline{\ ?\ }$

25. $3\times5\times5\times5=3^1\times\underline{\ ?\ }$

26. $2^3\times2\times3\times3=\underline{\ ?\ }\times\underline{\ ?\ }$

27. $10\times10\times10\times3^1=3\times\underline{\ ?\ }$

28. $6\times10\times10\times10\times10=\underline{\ ?\ }\times\underline{\ ?\ }$

29. $6\times6\times5\times5=\underline{\ ?\ }\times\underline{\ ?\ }$

30. $8\times7\times8\times7=\underline{\ ?\ }\times\underline{\ ?\ }$

31. $4\times6\times6\times6=\underline{\ ?\ }\times\underline{\ ?\ }$

32. $4^2\times4\times3\times3=\underline{\ ?\ }\times\underline{\ ?\ }$

33. $10\times10\times10\times7=\underline{\ ?\ }\times\underline{\ ?\ }$

34. $3\times10\times10=\underline{\ ?\ }\times\underline{\ ?\ }$

Rename with the standard numeral.

1. $2^2 = \underline{\ ?\ }$

2. $7^2 = \underline{\ ?\ }$

3. $1^2 = \underline{\ ?\ }$

4. $0^6 = \underline{\ ?\ }$

5. $3^2 = \underline{\ ?\ }$

6. $9^2 = \underline{\ ?\ }$

7. $10^3 = \underline{\ ?\ }$

8. $1^{15} = \underline{\ ?\ }$

9. $4^3 = \underline{\ ?\ }$

10. $8^2 = \underline{\ ?\ }$

11. $6^3 = \underline{\ ?\ }$

12. $10^2 = \underline{\ ?\ }$

13. $0^8 = \underline{\ ?\ }$

14. $1^{47} = \underline{\ ?\ }$

15. $6^2 = \underline{\ ?\ }$

16. $10^4 = \underline{\ ?\ }$

opy each exercise, writing $>$, $<$, or $=$ in place of the ○.

7. 3^2 ○ 2^3

8. 5^2 ○ 2^5

9. 4^2 ○ 2^4

0. 8^2 ○ 8×2

21. 16 ○ 2^4

22. 1^9 ○ 19

23. 10^5 ○ 10,000

24. 5^2 ○ 10

25. 3^2 ○ 6

26. 0^6 ○ 6

27. 37^2 ○ 2×37

28. 1^{642} ○ 2

ename, using exponents and prime factors.

9. $12 = \underline{\ ?\ }$

$12 = 2 \times 6$

$= 2 \times 2 \times 3$

$= 2^2 \times 3$

30. $16 = \underline{\ ?\ }$

31. $98 = \underline{\ ?\ }$

32. $96 = \underline{\ ?\ }$

33. $40 = \underline{\ ?\ }$

34. $80 = \underline{\ ?\ }$

35. $72 = \underline{\ ?\ }$

Rename, using expanded notation.

1. $87 = ? + ?$
2. $94 = ? + ?$
3. $112 = ? + ? + ?$
4. $474 = ? + ? + ?$
5. $942 = ? + ? + ?$
6. $1060 = ? + ? + ? + ?$
7. $46 = ? + ?$
8. $78 = ? + ?$
9. $242 = ? + ? + ?$
10. $678 = ? + ? + ?$
11. $975 = ? + ? + ?$
12. $1475 = ? + ? + ? + ?$

Rename.

$$\begin{aligned} 2745 &= 2000 + 700 + 40 + 5 \\ &= (2 \times 1000) + (7 \times 100) + (4 \times 10) + 5 \\ &= (2 \times 10^3) + (7 \times 10^2) + (4 \times 10^1) + 5 \end{aligned}$$

13. $46 = ? + ?$
$= (?) + (?)$

14. $183 = ? + ? + ?$
$= (?) + (?) + ?$

15. $8987 = ? + ? + ? + ?$
$= (?) + (?) + (?) + ?$
$= (?) + (?) + (?) + ?$

16. $25{,}643 = ? + ? + ? + ? + ?$
$= (?) + (?) + (?) + (?) + ?$
$= (?) + (?) + (?) + (?) + ?$

17. $487{,}912 = ? + ? + ? + ? + ? + ?$
$= (?) + (?) + (?) + (?) + (?) + ?$
$= (?) + (?) + (?) + (?) + (?) + ?$

12345 678910115

1. Copy each number and list its whole-number factors.

6 1,2,3,6
8
10
15
18

24
36
44
48
54

2. Rename each number as the product of prime factors.

$6 = 2 \times \underline{\ ?\ }$
$12 = 2 \times \underline{\ ?\ } \times 3$
$14 = \underline{\ ?\ }$
$16 = \underline{\ ?\ }$
$25 = \underline{\ ?\ }$

$28 = \underline{\ ?\ }$
$32 = \underline{\ ?\ }$
$40 = \underline{\ ?\ }$
$56 = \underline{\ ?\ }$
$60 = \underline{\ ?\ }$

3. Which are prime numbers?

0 1 2 3 4 7 9 11 13 17 20 23 40

Copy each sentence, writing >, <, or = in place of the ○.

4. 2^3 ○ 3^2

5. 4^2 ○ 2^4

6. 1^4 ○ 1^6

7. 0^6 ○ 1

8. 6^4 ○ 4×6

9. $4^2 \times 3^2$ ○ $2^2 \times 3^3$

Rename, using exponents.

10. $3 \times 3 \times 3 \times 3 = \underline{\ ?\ }^{\underline{\ ?\ }}$

11. $4 \times 4 \times 4 \times 4 \times 4 = \underline{\ ?\ }^{\underline{\ ?\ }}$

12. $17 \times 17 \times 18 \times 18 = \underline{\ ?\ }^{\underline{\ ?\ }} \times \underline{\ ?\ }^{\underline{\ ?\ }}$

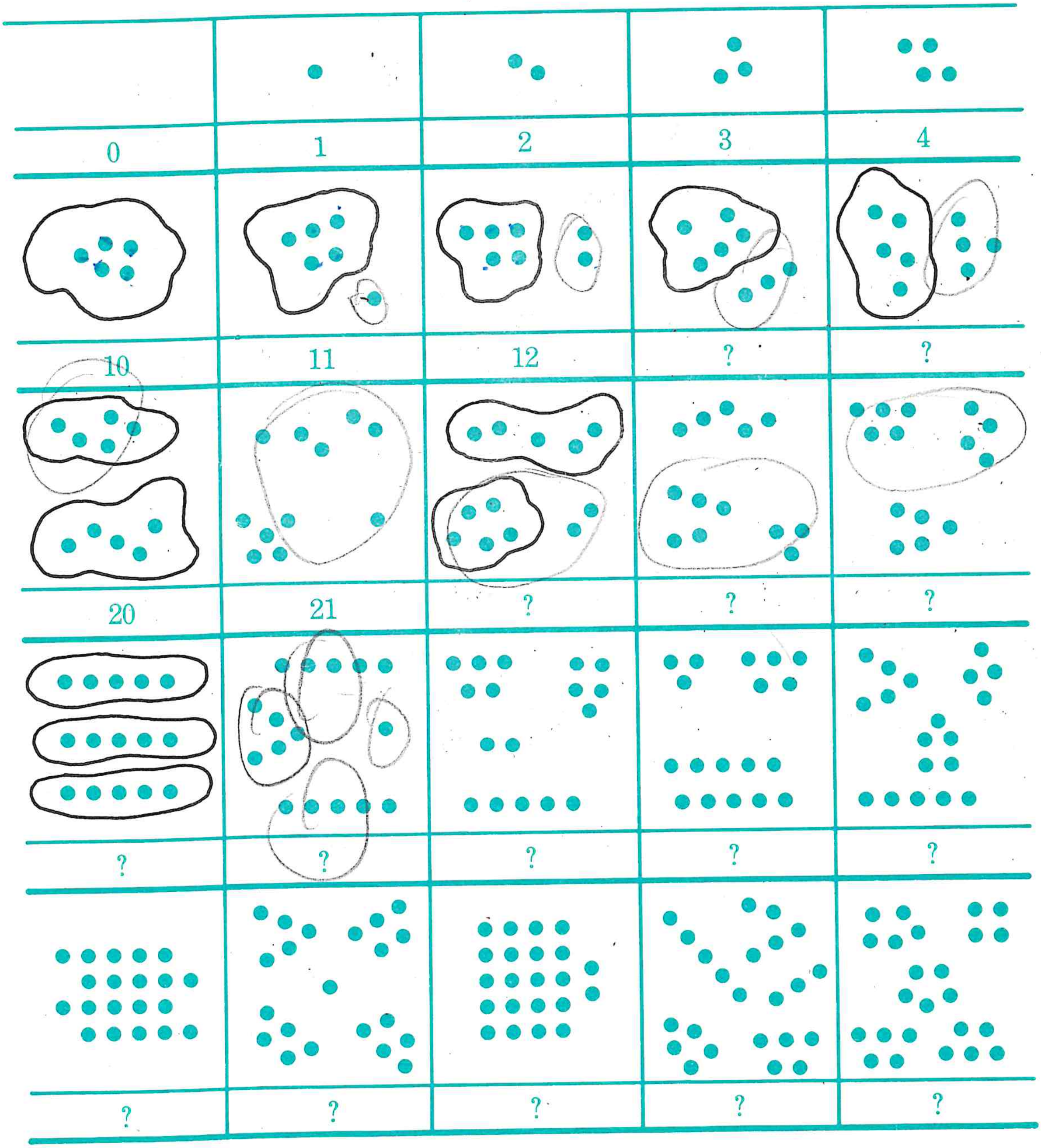
13. $22 \times 22 \times 21 = \underline{\ ?\ } \times \underline{\ ?\ }^{\underline{\ ?\ }}$

14. $6 \times 78 \times 78 \times 78 = \underline{\ ?\ } \times \underline{\ ?\ }^{\underline{\ ?\ }}$

15. $482 = (4 \times \underline{\ ?\ }) + (8 \times \underline{\ ?\ }) + 2$

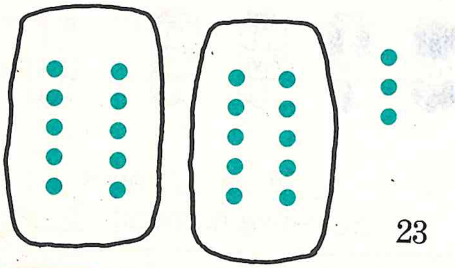
BASE FIVE NUMERATION

Bill and Jim invented a new way to name the cardinal numbers of sets. They used only five digits: 0, 1, 2, 3, and 4. They made the following chart. Copy and complete it.



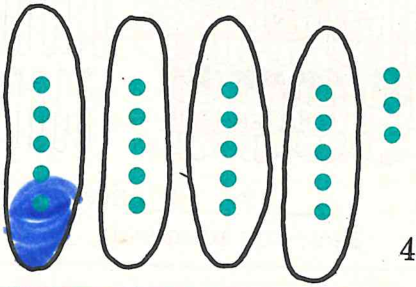
Jim and Bill were explaining their number system to George. They told George that the numeral 23 means two groups of 5 and three groups of 1. George said, "But 23 also means two groups of 10 and three groups of 1." Jim suggested 23_{five} as a name for his new number so it wouldn't be confused with 23. Bill added, "We will read it *two-three, base five.*"

Grouping by Tens



23

Grouping by Fives



43_{five}

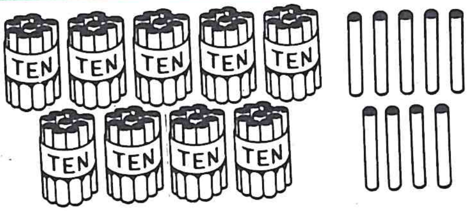
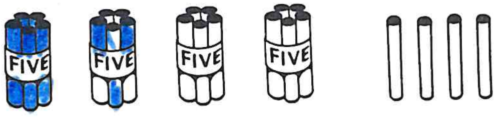
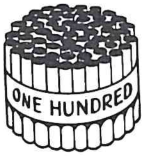
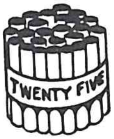
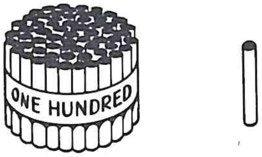
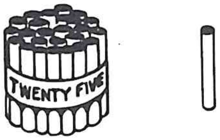
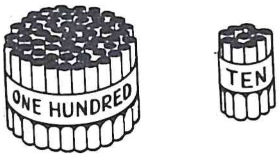
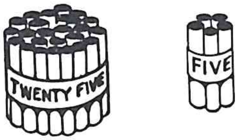
Copy and complete the table.

Base-ten Numeral	Grouping by Tens	Grouping by Fives	Base-five Numeral
22	2 tens 2 ones	4 fives 2 ones	42_{five}
15	? tens ? ones	? fives ? ones	$\underline{?}_{five}$
7	? tens ? ones	? fives ? ones	$\underline{?}_{five}$
?	? tens ? ones	? fives ? ones	24_{five}
?	? tens ? ones	? fives ? ones	33_{five}
?	? tens ? ones	? fives ? ones	40_{five}
?	2 tens 4 ones	? fives ? ones	$\underline{?}_{five}$
?	0 tens 5 ones	? fives ? ones	$\underline{?}_{five}$
?	? tens ? ones	2 fives 0 ones	$\underline{?}_{five}$
?	? tens ? ones	3 fives 4 ones	$\underline{?}_{five}$

4

George asked Bill and Jim, "How do you name numbers greater than 44_{five}?" Bill said, "When we get five groups of five we use a new place in our system."

"We call it the *twenty-fives place*," Jim said. "We can think of thirty-three as 1 twenty-five, 1 five, and 3 ones. We name it 113_{five}."

Grouping by Tens	Grouping by Fives
1.  ___?___ tens, ___?___ ones Base-ten numeral ___?___	2.  ___?___ fives, ___?___ ones Base-five numeral ___?___
3.  ___?___ hundred, ___?___ tens, ___?___ ones Base-ten numeral ___?___	4.  ___?___ twenty-five, ___?___ fives, ___?___ ones Base-five numeral ___?___
5.  ___?___ hundred, ___?___ tens, ___?___ one Base-ten numeral ___?___	6.  ___?___ twenty-five, ___?___ fives, ___?___ ones Base-five numeral ___?___
7.  ___?___ hundred, ___?___ ten, ___?___ ones Base-ten numeral ___?___	8.  ___?___ twenty-five, ___?___ five, ___?___ ones Base-five numeral ___?___

A+D

1. Copy and complete the table.

Base-ten Numeral	Grouping by Tens	Grouping by Fives	Base-five Numeral
31	? hundreds, ? tens, ? ones	? twenty-fives, ? fives, ? ones	?
45	? hundreds, ? tens, ? ones	? twenty-fives, ? fives, ? ones	?
?	? hundreds, ? tens, ? ones	? twenty-fives, ? fives, ? ones	434_{five}
?	? hundreds, ? tens, ? ones	3 twenty-fives, 2 fives, 0 ones	?

2. Rename.

Base-ten	39	40	41	?	?	?
Base-five	$?_{\text{five}}$	$?_{\text{five}}$	$?_{\text{five}}$	210_{five}	220_{five}	230_{five}

Base-ten	82	37	?	?	?	99
Base-five	$?_{\text{five}}$	?	201_{five}	334_{five}	231_{five}	?

Base-ten	?	?	115	119	124	?
Base-five	400_{five}	401_{five}	?	?	?	440_{five}

Copy each exercise, writing >, <, or = in place of the ○.

3. 10 ○ 10_{five}
4. 23_{five} ○ 32_{five}
5. 19 ○ 34_{five}
6. 14_{five} ○ 29
7. 25 ○ 100_{five}
8. 44 ○ 140_{five}
9. 41_{five} ○ 21
10. 38 ○ 120_{five}
11. 100 ○ 400_{five}
12. 42_{five} ○ 32
13. 89 ○ 324_{five}
14. 424_{five} ○ 242_{five}

Jim keeps only quarters, nickels, and pennies in his savings bank. He always uses as few coins as possible when he buys something. He bought a \$.12 comic book. He spent $\underline{\ ?\ }$ nickels and $\underline{\ ?\ }$ pennies. He made a note in his diary that he had spent $\underline{\ ?\ }_{\text{five}}$ cents.

For each of the following amounts, how many quarters, nickels, and pennies did Jim spend? Write a base-ten numeral and a base-five numeral to tell how many cents he spent each time.

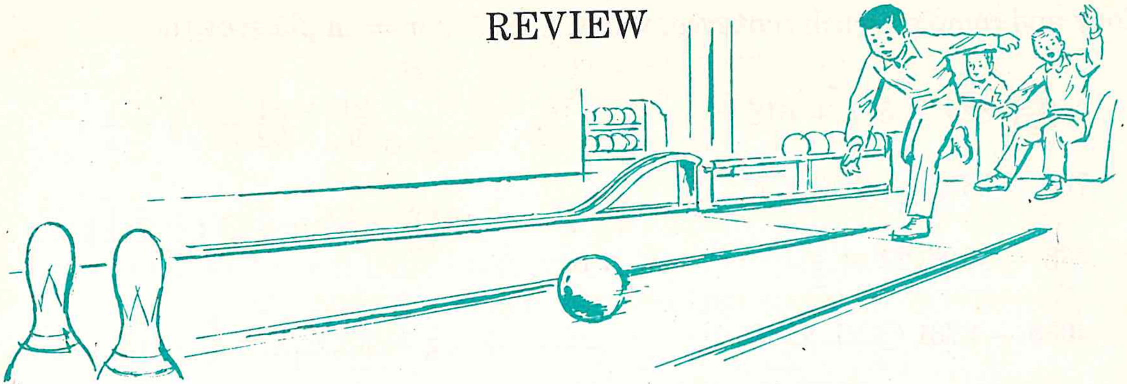
1. \$.12 $\underline{\ ?\ }$ quarters, $\underline{\ ?\ }$ nickels, $\underline{\ ?\ }$ pennies $\underline{\ ?\ }_{\text{ten}}$ $\underline{\ ?\ }_{\text{five}}$

2. \$.17
3. \$.19
4. \$.69
5. \$.09
6. \$.23
7. \$.73
8. \$.11
9. \$.20
10. \$1.00
11. \$.14
12. \$.38
13. \$1.19
14. \$.05
15. \$.51
16. \$1.24

How much did each child save? Write a base-ten numeral and a base-five numeral for each child.

		Dollars	Quarters	Dimes	Nickels	Pennies
1.11	Sue	1		1		1
1.03	Owen			9	2	3
.66	Jean		2		3	1
1.21	Janet	1		2		1
1.07	Alfred	1		0		7
63	Connie		1	3	1	3
68	Richard			6		8
67	Penny					67
1.10	Gay		4		2	
1.25	Larry	1	1			
1.15	Stanley	1		1	1	
92	Candy		3			17

REVIEW



1. Jack and Bill went bowling on Tuesday and Thursday last week. They bowled three games on each day. On Tuesday Jack bowled 125, 146, and 128, and Bill bowled 154, 145, and 121. On Thursday, Jack bowled 162, 118, and 149; Bill bowled 152, 168, and 130. Copy and complete the following table.

	Jack		Bill	
	Tues.	Thurs.	Tues.	Thurs.
Total	? 399	? 429	? 420	? 450
Average	? 133	? 143	? 140	? 150

Total Average 138 Total Average 145

2. Which boy had the higher total score for all six games?
3. How much higher was it?
4. Who won the greater number of games?

---

5. On Monday, Juan García sold 15 tickets to the school play. He collected $5.25. How much did each ticket cost?
6. Juan sold 97 tickets during the entire week. How much money did he collect?

---

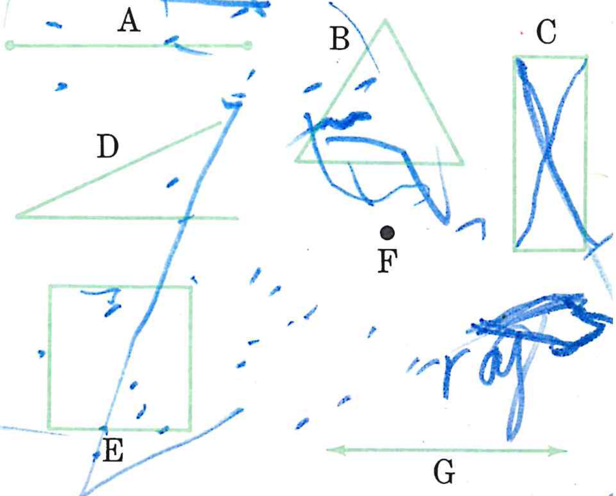
7. In Mrs. Evan's classroom, three-fourths of the students wear glasses. Of these students, two-thirds are right-handed. What part of the students in Mrs. Evan's classroom wear glasses and are right-handed?

Copy and complete each sentence, writing $<$, $>$, or $=$ in place of the ○.

1. $356 + 829 < 587 + 618$
2. $763 \times 53 > 3 \times 13{,}477$
3. $363 \div 33 < 22 \times \frac{1}{2}$
4. $4035 - 3761$ ○ 21×13
5. $437 + 571 + 367$ ○ $(1742 - 341) - 27$
6. $481 \div 37$ ○ $(431 + 219) - 637$
7. $2^2 \times 3^3$ ○ $(9 \times 12) + 13$
8. 127×72 ○ 37×250
9. $4321 + 76{,}541$ ○ 837×96
10. 927×83 ○ 645×98
11. 2ft.3in. − 20in. ○ 3yd.1ft. − 3yd.6in.
12. $\frac{7}{3} - \frac{21}{9}$ ○ $\left(\frac{1}{2} + \frac{1}{3}\right) - \frac{5}{6}$
13. $\left(\frac{2}{3} \times \frac{3}{4}\right) \times \frac{3}{5}$ ○ $\left(\frac{1}{4} \times \frac{1}{3}\right) \times 4$
14. $\frac{6}{5} \times \frac{2}{3}$ ○ $\frac{3}{10} + \frac{2}{5} + \frac{1}{10}$
15. $15 \times \frac{1}{3}$ ○ $14 \times \frac{3}{7}$
16. $\frac{5}{6} + \frac{2}{3}$ ○ $1\frac{1}{2} - \frac{1}{6}$
17. $3\frac{3}{4} + 1\frac{1}{2}$ ○ $6\frac{1}{2} - 1\frac{5}{8}$
18. $(284 \div 142) - 1$ ○ $\frac{1}{3} + \frac{1}{2} + \frac{1}{4}$
19. 3^4 ○ $3^2 + 72$

---

20. Which figures are rectangles?
21. Which figures are triangles?
22. Which figures are line segments?
23. Which figures are angles?
24. Which figures are circles?
25. Which figures are points?
26. Which figures are squares?
27. Which figures are lines?



ray

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Reorder No. 3-694